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Strategic Distribution Platform Support of CONUS Army Units

Marc Robbins

Prepared for the United States Army

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RAND ARROYO CENTER

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Preface

Home station units depend upon a reliable distribution system to provide them the supplies they need to train and prepare for possible deployments. Most of the focus of concern in the past decade has been on how forces deployed to theaters of combat operation have been supported by the global distribution system—understandably, for an Army engaged in two wars. But with forces returning home from Iraq, and with a drawdown anticipated to begin in Afghanistan after July 2011, along with repositioning of forces in Europe and Korea to the continental United States (CONUS) as part of the Integrated Global Presence and Basing Strategy (IGPBS), support to Army forces in CONUS will be of increasing concern. In addition, as contingencies wind down, budgetary concerns are likely to be of increasing importance. The Department of Defense (DoD), and the Army, will be under increasing pressure to do more with less and will require a distribution system that helps maintain readiness and supports training goals with timely delivery of needed supplies, and does so at the lowest cost possible.

The Deputy Chief of Staff of the Army for logistics tasked RAND Arroyo Center to investigate ongoing trends in distribution support to the Army, with particular focus on CONUS units, and to report on emerging issues and opportunities. This documented briefing focuses on one key element of that support: the performance of the scheduled truck network that has been a keystone of support to Army forces in CONUS. It is a revised version of a briefing given to a group of senior Army and DoD logistics leaders at RAND Arroyo Center's annual "Logistics Day" on September 21, 2010.

This research was sponsored by the Deputy Chief of Staff for Logistics, Headquarters, Department of the Army, and conducted within RAND Arroyo Center's Military Logistics Program. RAND Arroyo Center, part of the RAND Corporation, is a federally funded research and development center sponsored by the United States Army.

The Project Unique Identification Code (PUIC) for the project that produced this document is RAND10483. Questions or comments can be directed to the project leader and author Marc Robbins at robbins@rand.org or by phone at 310/393-0411 extension 7362.

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Summary

Home station units depend upon a reliable distribution system to provide the supplies they need to train and prepare for possible deployments. Most of the focus of concern in the past decade has been on how forces deployed to theaters of combat operation have been supported by the global distribution system—understandably, for an Army engaged in two wars. But with forces returning home from Iraq, and with a drawdown anticipated to begin in Afghanistan after July 2011, along with the repositioning of forces in Europe and Korea to the continental United States (CONUS) as part of the Integrated Global Presence and Basing Strategy (IGPBS), support to Army forces in CONUS will be of increasing concern. In addition, as contingencies wind down, budgetary concerns are likely to be of increasing importance. The Department of Defense (DoD), and the Army, will be under increasing pressure to do more with less and will require a distribution system that helps maintain readiness and supports training goals with timely delivery of needed supplies, and does so at the lowest cost possible.

This documented briefing presents results of analysis done as part of an ongoing effort by RAND Arroyo Center to support the Army by identifying opportunities for improvements in the DoD distribution system. Arroyo has been working with the Army and its partners in the DoD global distribution system—including the Defense Logistics Agency (DLA), United States Transportation Command (USTC), and General Services Administration (GSA)—for more than fifteen years in some areas of distribution.

The cornerstone of support to forces in CONUS is the leveraging of Strategic Distribution Platform (SDP) storage via scheduled truck networks. SDPs are the central element of the DLA distribution concept, responsible for most storage of DoD-owned materiel at the wholesale level and replenishment of other DLA distribution depots, including Forward Distribution Points (FDPs) collocated with service repair depots, and Forward Distribution Depots

(FDDs) located OCONUS to support deployed forces, especially for heavy, bulky items or where the FDD has a distinct performance advantage.

DLA's distribution depot network currently features two SDPs at opposite sides of the country, at Susquehanna, Pennsylvania (DDSP) and San Joaquin, California (DDJC). The primary means of support to large-volume CONUS locations from these two SDPs is via scheduled truck.

The scheduled truck network linked to the two SDPs was developed by the Army and DLA (with analytical support from RAND Arroyo Center) under the Army's Velocity Management initiative in the mid-1990s. This concept has four key elements:

- **Maximum support from a customer's assigned SDP.** Customers are assigned to SDPs on a roughly geographical basis, with the Mississippi River as the rough dividing line (though central CONUS customers are sometimes switched between SDPs). DLA and the Army have agreed to the goal that the SDP will be the source for 85 percent of customer demands stocked in DLA depots.
- **Leverage high fill rates via scheduled truck.** Where volume and distance permit, customers will be supported from their assigned SDP via scheduled truck service, with the economically feasible maximum number of trucks per week. Higher fill rates from the SDP, achieved through better stockage strategies, increase the volume available to go by truck, lowering transportation costs and enabling greater truck frequency.
- **Move all priorities via the truck.** The new distribution paradigm replaced the previous model based on optimizing individual shipments (e.g., high priority to go by premium air, low priority by slower, cheaper modes). Truck efficiency and effectiveness resulted from lumping all cargo together, no matter its priority or size. Via a "one freight/all freight" concept, all cargo—no matter its size or priority—could achieve premium air-like responsiveness at a fraction of the cost.
- **Synchronize movements through multiple stops.** Scheduled truck service provides better synchronization and feedback mechanisms. By

building routes for multiple dropoffs, individual units on a post can be served directly by the truck; if schedules are done properly, the truck will arrive at a scheduled time, helping supply units plan operations better. Because the truck is on a schedule, units will be aware when the truck is delayed or does not come at all, and can communicate back to the SDP about problems with the trucking company.

Increasing the proportion of demand filled from a customer's assigned SDP (the "facing fill" rate) facilitates expansion of scheduled truck usage, as Figure S.1 indicates. It also shows, however, a weakening of that tie in recent years, as the percentage of DDSP/DDJC shipments going via scheduled truck flattened after 2003 even as the facing fill at both SDPs increased. That is, the distribution network was not leveraging improvements in facing fill to reduce cost and improve responsiveness to the maximum extent.

Figure S.1
Scheduled Trucks as the Dominant Mode for CONUS Army Customers

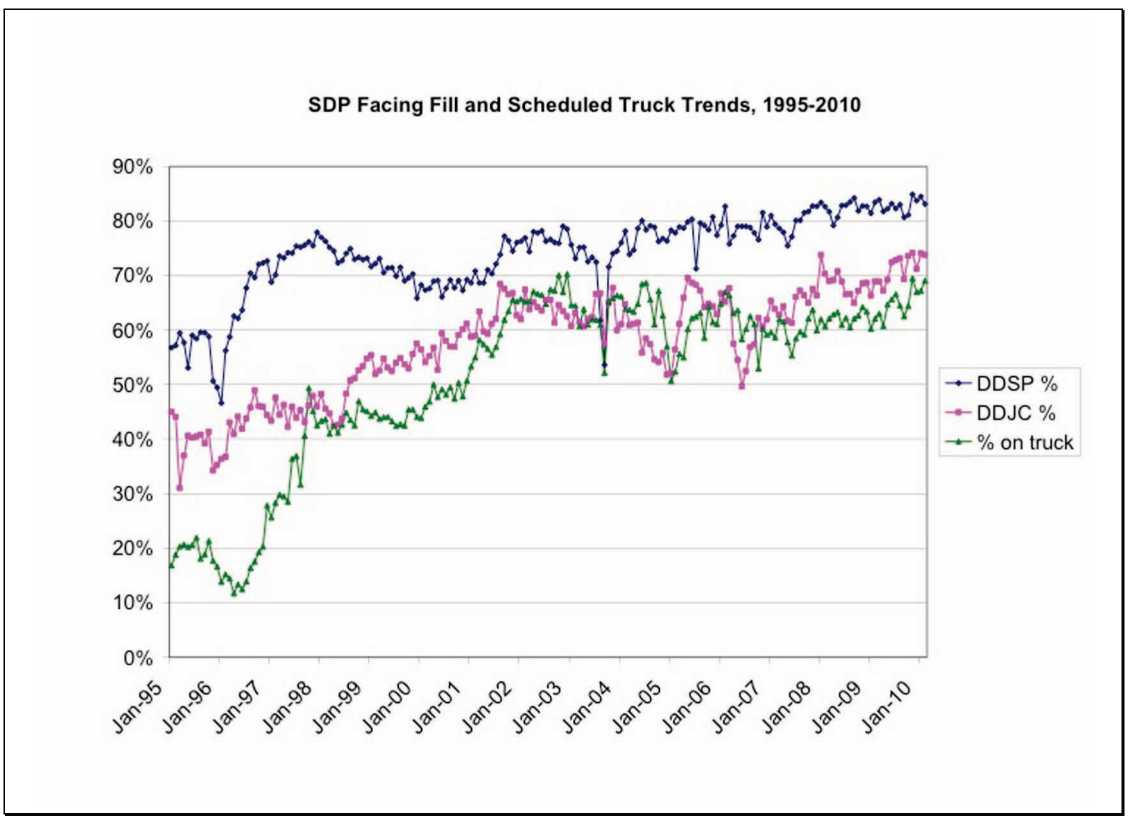
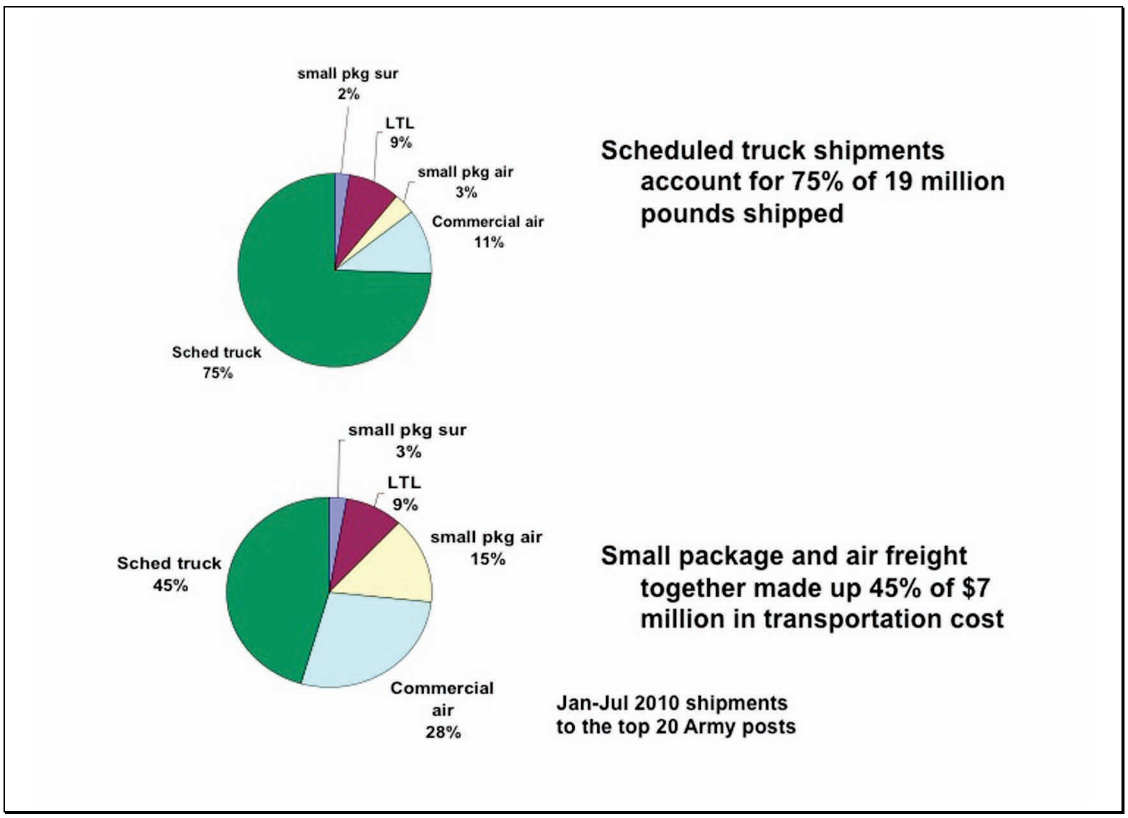


Figure S.2 summarizes the present scale of scheduled truck coverage for major CONUS Army posts. Scheduled trucks dominate the volume moved by weight, accounting for 75 percent of pounds shipped from the two SDPs to these twenty major locations. However, many shipments are not moved via the scheduled truck. One result is an imbalance of costs: nonscheduled truck shipments account for 55 percent of transportation costs from the SDPs to these posts, even as they only account for 25 percent of shipment weight.

Figure S.2
Cost and Volume Breakout by Mode



Use of modes other than scheduled truck can occur for any of three reasons:

- **"Facing fill" shortfalls:** the demanded item is not issued from the customer's supporting SDP.

- **“Leakage”:** the supporting SDP issues the item but it does not go on the truck servicing the Army post.
- **No truck service:** there is no scheduled truck service from the SDP to the Army post.

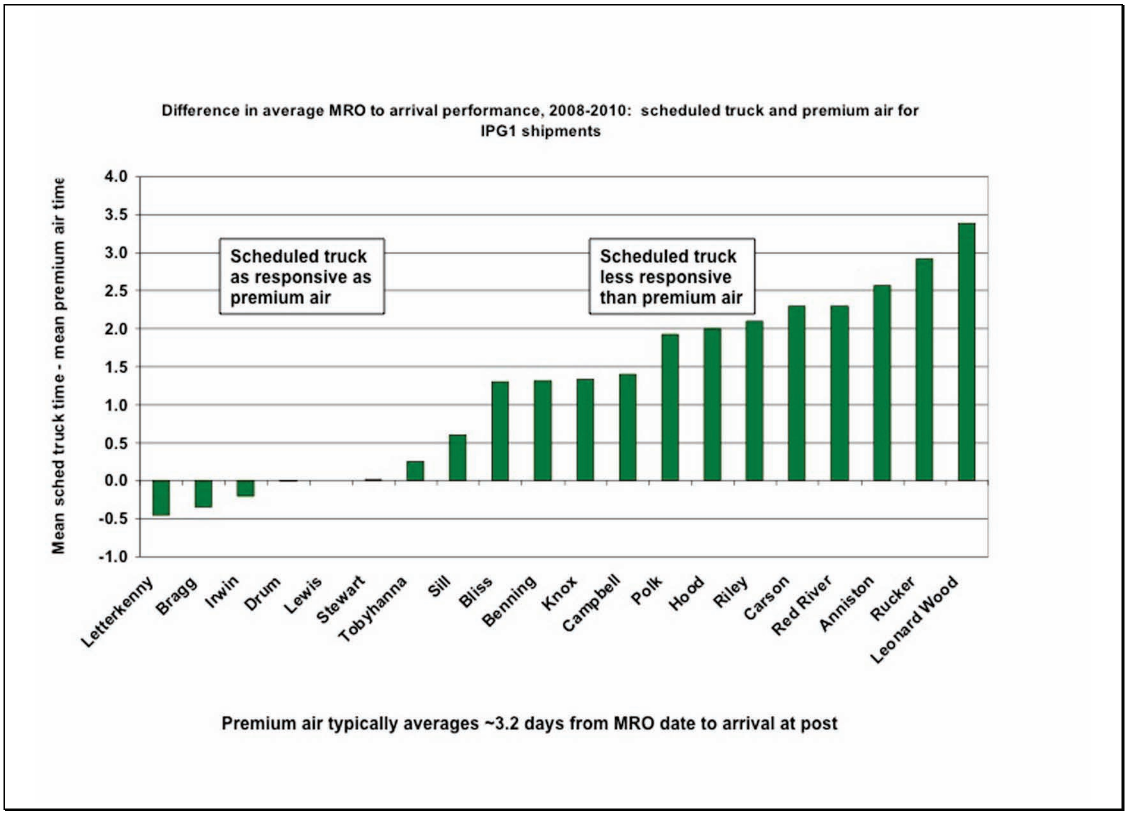
One consequence of shortfalls in scheduled truck coverage, along with other issues in scheduled truck performance, is less responsiveness to customer needs, especially compared to alternatives like premium air services. Figure S.3 shows, for major Army posts, the difference between average response time (here measured from the time the materiel release order is produced until the shipment arrives at its destination) between premium air and scheduled trucks. Negative numbers indicate that trucks are more responsive, positive numbers that premium air is faster. In some cases, primarily those closest to the SDP, scheduled trucks outperform premium air, but in the majority of the cases they do not, in some cases by a considerable amount.

Strengthening the scheduled truck network will help both reduce costs and increase responsiveness. There are several steps that should be taken by the Army alone and in collaboration with its supply chain partners.

The Army currently has no policy guiding the use of this network. HQDA G-4 should provide such a policy. Since “leakage” from units not participating on an existing truck supporting their home station can increase overall costs and reduce effectiveness for their neighbors, the policy should call for all units on a post with scheduled truck service to receive their shipments via the truck unless an explicit waiver has been granted.

The policy should also call for better monitoring by the Army. The Army should designate a capable agency to develop metrics and produce recurrent reports on the health of the scheduled truck network. This would include facing fill metrics (based on the standard agreed to jointly by the Army and DLA), identification of posts and major locations not on the truck, and the amount of leakage on Army posts from units not participating in the truck network.

Figure S.3
Comparative Responsiveness of Truck and Premium Air Modes by Army Post



The Army should work closely with DLA and, as necessary, with process managers associated with USTC's Defense Transportation Coordination Initiative (DTCI) to make necessary changes in the truck network.

Strengthening the scheduled truck network falls into both near-term and more ambitious long-term actions.

Near-term actions:

- **Add new destinations to existing truck routes.** Locations currently not served by trucks but which are located on or near currently existing routes may be added to increase the volume on the route and so reduce cost and/or increase the frequency.

- **Add customers not on the truck at posts served by scheduled trucks.** The Army needs to work with DLA and USTC to determine the reasons that units are not included on trucks and the process by which their participation is determined.
- **Scrutinize reasons for using other shipping modes for customers mainly supported by scheduled trucks.** While for most units served by trucks, this is not a significant problem, the Army should still work with DLA to determine the reasons for this type of "low level" leakage and to minimize its occurrence.
- **Improve SDP processing times.** Getting pulled shipments on the next departing truck should be a focus of DLA process improvement efforts, especially for high-priority requisitions.

These steps would likely have a moderate effect on scheduled truck comprehensiveness and performance. More significant improvements could be achieved by some more far-reaching changes. One might yield much greater volume on individual routes, lowering costs and improving responsiveness, while another could greatly shorten truck route distance, with the same effect.

Longer-term actions:

- **Cross-dock non-SDP shipments onto scheduled trucks.** In addition to SDP shipments, units receive deliveries via multiple shipping modes from GSA and direct from vendor, as well as other sources. Where feasible, it may be worthwhile to explore the possibility of routing shipments from these sources through the SDP and onto scheduled trucks. Not only could this reduce overall cost from the system point of view, but it would simplify processes for customers who, in the best case, would receive all their orders in a single delivery.
- **Build capability of new regional SDPs to support local customers via scheduled trucks.** BRAC recommendation-based laws established two new SDPs in central CONUS (Oklahoma City, Oklahoma) and the southeast (Warner-Robins, Georgia). The two are

slated to play less comprehensive roles than DDSP and DDJC, primarily focusing on resupplying Forward Distribution Depots in their regions collocated with service repair depots. If in the future resources were made available to facilitize these two as fully capable SDPs, with a target of 85 percent facing fill for their assigned regional customers, support to customers in their regions could be greatly improved. This would especially benefit central CONUS locations that, as shown in the main text, tend to have less frequent trucks with longer delivery times.

Acknowledgments

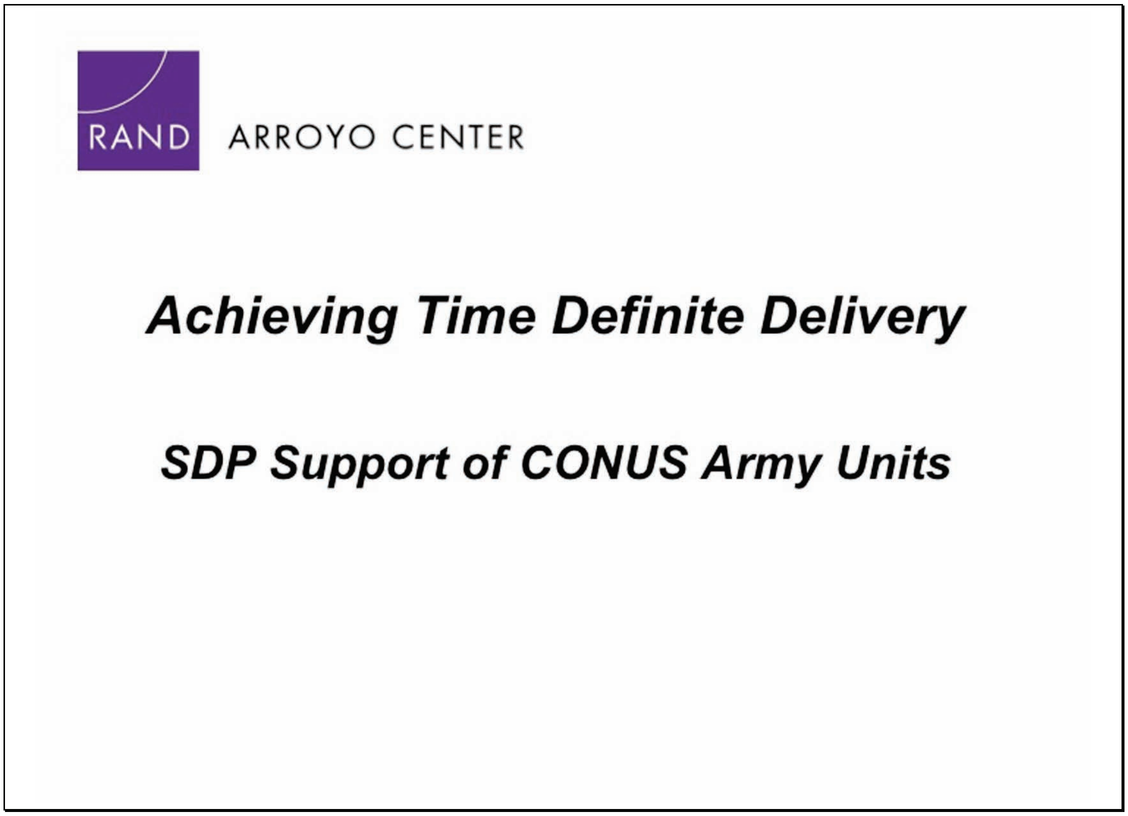
This research project and RAND Arroyo Center's continuing work on global distribution has benefited enormously from the strong and incisive support of LTG Mitchell Stevenson, Deputy Chief of Logistics, Headquarters Army (G-4). The author also wishes to express his gratitude for the support and efforts of LTG Stevenson's staff, including Mark Averill, Director of the Force Projection and Distribution Directorate, his deputy Jack Welsh, and staff members Diana Nalli, Rob Saylor, and Steven Lord.

I am grateful to Leah Hornung and Jessica Yost at DLA Distribution and to LTC Jeff Gulick and Richard George at U.S. Transportation Command for their help. I also thank Tye Beasley, Chief, Defense Transportation Coordination Initiative (DTCI), and his staff, for providing insights about DTCI concepts and operation.

At RAND, Pat Boren's management of databases and help in providing analytical assistance was invaluable. Jason Eng provided needed assistance in mapping and other data support issues. I wish to thank Pamela Thompson for her editorial help. The report's reviewers—Keenan Yoho, Adam Resnick, and Ron McGarvey—made cogent and constructive points that I believe have strengthened the document and increased its clarity. Lastly, my gratitude goes to Art Lackey, Eric Peltz, and Ken Girardini for their welcome support and insights.

Glossary

BRAC	Base Reconciliation and Closure Commission
BSB	Brigade Support Battalion
CONUS	Continental United States
DDC	Defense Distribution Center
DDJC	Defense Depot San Joaquin CA
DDSP	Defense Depot Susquehanna PA
DLA	Defense Logistics Agency
DoD	Department of Defense
DSS	Distribution Support System
DTCI	Defense Transportation Coordination Initiative
EBS	Enterprise Business System
FDD	Forward Distribution Depot
FDP	Forward Distribution Point
GSA	General Services Administration
HQDA	Headquarters, Department of the Army
IGPBS	Integrated Global Presence and Basing Strategy
LIF	Logistics Intelligence File
LIW	Logistics Information Warehouse
OCONUS	Outside the Continental United States
RWT	Requisition Wait Time
SDDB	Strategic Distribution Database
SDP	Strategic Distribution Platform
USTC	United States Transportation Command



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Outline

- Background
- Facing fill and scheduled truck performance
- Sources of "leakage" from the truck network
- Issues in scheduled truck performance
- Potential actions for strengthening/expanding the truck system

This documented briefing has five sections. The next section provides an overview of the methodology and data used in this study and provides a brief historical overview of the development of the scheduled truck system. The next section shows performance from a historical point of view and examines current issues in more detail.

The third section examines the extent to which materiel is not being moved via scheduled truck, and the fourth section takes on issues in scheduled truck performance that may account for some of this "leakage." The final section summarizes the results and offers recommendations for strengthening the system.

1. Background

Study Background and Methodology

- **Focus on state of CONUS distribution system**
  - **Role of Strategic Distribution Platforms**
  - **Health of the scheduled truck system**
  - **Need for strengthening and areas for future progress**
- **Data resources and methodology**
  - **Leverage >15 years of RAND work with Army, DLA, other organizations on distribution**
  - **Use in-house databases at RAND covering up to 15 years of distribution performance**
    - **Strategic Distribution Database (SDDB)**
    - **Extracts from DLA's Distribution Support System (DSS)**
    - **Archival files from Army's Logistics Intelligence File**
  - **Interviews with subject matter experts in the Army, DLA, and U.S. Transportation Command (USTC)**

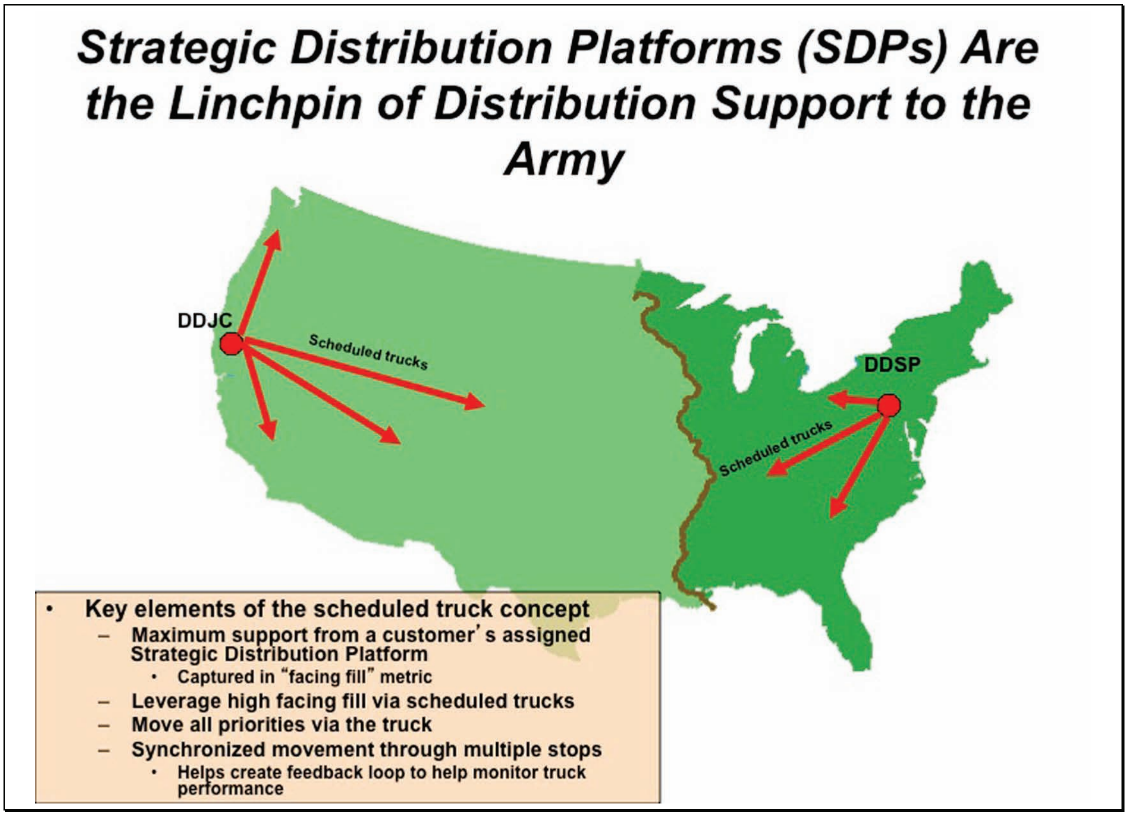
This study was done as part of an ongoing effort by RAND Arroyo Center to support the Army by identifying opportunities for improvements in the DoD distribution system. Arroyo has been working with the Army and its partners in the DoD global distribution system—including the Defense Logistics Agency (DLA), United States Transportation Command (USTC), and General Services Administration (GSA)—for more than fifteen years in some areas of distribution.

Over the course of that work, Arroyo has assembled a rich and detailed database on distribution operations that forms the core resource for executing

the current work. The primary source is the Strategic Distribution Database (SDDB), a detailed history of all MILSTRIP-based[1] distribution actions executed over the past ten years. In addition, the project used a 15-year archive of data from the Army's Logistics Intelligence File (LIF), now part of the Army's Logistics Information Warehouse (LIW), detailed databases on distribution activities executed by DLA from DLA's Distribution Support System (DSS), and other sources as well.

Arroyo supplemented this analysis with support from subject matter experts in the Army, DLA's Defense Distribution Center (DDC, now renamed DLA Distribution), and USTC's Defense Transportation Coordination Initiative (DTCI), the effort through which much of CONUS transportation has been outsourced to a third-party logistics provider.

[1] MILSTRIP is Military Standard Requisitioning and Issue Procedures.



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DLA's distribution depot network currently features two SDPs at opposite sides of the country, at Susquehanna, Pennsylvania (DDSP) and San Joaquin, California (DDJC). As a result of laws passed following recommendations of the Base Reconciliation and Closure Commission (BRAC), two more SDPs will be stood up by converting two existing depots at Oklahoma City, Oklahoma and Warner-Robins, Georgia; these two new SDPs are anticipated to have more limited roles than DDSP and DDJC, however.

The scheduled truck network linked to the two SDPs was developed by the Army and DLA (with analytical support from Arroyo) under the Army's Velocity Management initiative in the mid-1990s.[2] This concept has four key elements:

- **Maximum support from a customer's assigned SDP.** Customers are assigned to SDPs on a roughly geographical basis, with the Mississippi River as the rough dividing line (though central CONUS customers are sometimes switched between SDPs). DLA and the Army have agreed to the goal that the SDP will be the source for 85 percent of customer demands stocked in DLA depots (called the "facing fill" or "gross fill rate" metric).[3]
- **Leverage high fill rates via scheduled truck.** Where volume and distance permit, customers will be supported from their assigned SDP via scheduled truck service, with the maximum number of trucks per week. Higher fill rates from the SDP, achieved through better stockage strategies, increase the volume available to go by truck, lowering transportation costs and enabling greater truck frequency.
- **Move all priorities via the truck.** The new distribution paradigm replaced the previous model based on optimizing individual shipments (e.g., high priority to go by premium air, low priority by slower, cheaper modes). Truck efficiency and effectiveness resulted from lumping all cargo together, no matter its priority or size. Via a "one

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[2] See, for example, John Dumond et al., *Velocity Management: The Business Paradigm That Has Transformed U.S. Army Logistic*s, Santa Monica, Calif.: RAND Corporation, MR-1108-A, 2001, and *Define-Measure-Improve: The Change Methodology That Has Propelled the Army's Successful Velocity Management Initiative*, Santa Monica, Calif.: RAND Corporation, RB-3020, 2000.

[3] Headquarters, United States Army G-4 and Headquarters, Defense Logistics Agency (DLA), *Performance Based Agreement (PBA)*, May 12, 2008, p. 14.

freight/all freight" concept, all cargo—no matter its size or priority—could achieve premium air–like responsiveness at a fraction of the cost.

- **Synchronize movements through multiple stops.** Scheduled truck service provides better synchronization and feedback mechanisms. By building routes for multiple dropoffs, individual units on a post can be served directly by the truck; if schedules are done properly, the truck will arrive at a predictable time, helping supply units plan operations better. Because the truck is on a schedule, units will be aware when the truck is delayed or does not come at all, and can communicate back to the SDP about problems with the trucking company.

Over its first years, DLA through its Defense Distribution Center (DDC) component command had full responsibility for managing the scheduled truck network. In 2008, DDC began a partnership for joint management of the network with USTC under the Defense Transportation Coordination Initiative, an effort to "improve the reliability, predictability, and efficiency of Department of Defense (DOD) material moving within the Continental United States by all modes through long-term partnerships with a world-class coordinator of transportation management services."[4]

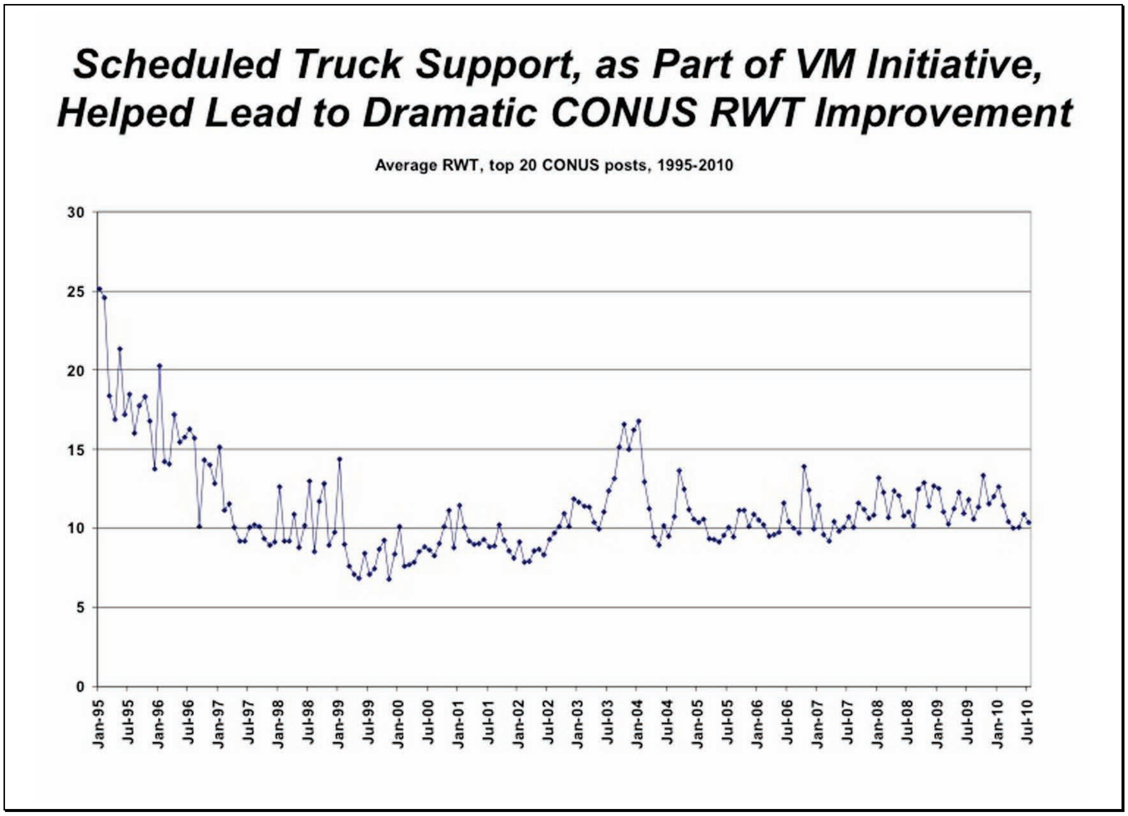
[4] http://www.transcom.mil/dtci/. Begun with USTC oversight, management of DTCI has recently passed to a component command of USTC, the Military Surface and Distribution Command (SDDC), which oversees the third-party logistics management contract currently operated by Menlo Worldwide Government Services, Inc.

2. Facing Fill and Scheduled Truck Performance

Outline

- Background
- **Facing fill and scheduled truck performance**
- Sources of “leakage” from the truck network
- Issues in scheduled truck performance
- Potential actions for strengthening/expanding the truck system

We next look at historical and more recent trends in performance.



The Velocity Management initiative of the mid-1990s, with its emphasis on process mapping, collaborative work, and continuous improvement, led to dramatic improvements in requisition wait time (RWT)[5] to Army customers in CONUS (as well as OCONUS). Over the past ten years, especially with the increased focus on supporting Army forces deployed to combat, RWT for CONUS units has shown at best a flat trend.[6]

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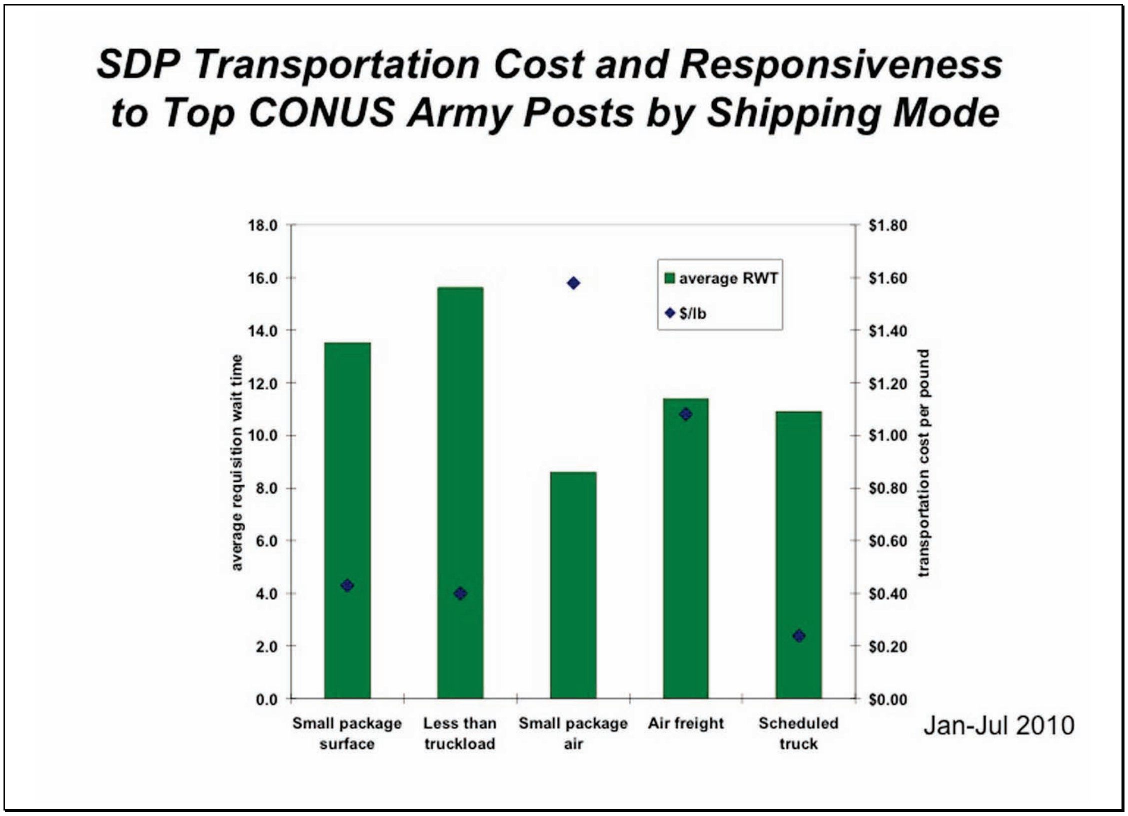
[5] See Dumond et al. (2001). Requisition wait time refers to the elapsed time from a customer's placing a requisition until that customer posts acknowledgment of receipt of the materiel. Since its main focus is on distribution processes and not supply availability, the RWT metric does not include time spent in backorder status (i.e., no stock was available to ship).

[6] The increase in 2003 and into 2004 in the figure was mostly associated with wartime-related demand surges and their impact on DDSP pick, pack, and ship processes.



Much of the value achieved by Velocity Management, in terms of both responsiveness and cost, came from expanding the scheduled truck network. This chart shows the comparative benefits of using scheduled trucks. Using 2010 data for SDP support to the top 20 CONUS Army posts,[7] it indicates costs and average RWT for the five major shipping modes used to fill customer demands. Scheduled trucks, at the far right, are cheaper than the less responsive modes (small package surface and less than truckload) while coming close to or exceeding the responsiveness of the far more expensive air-based distribution modes.

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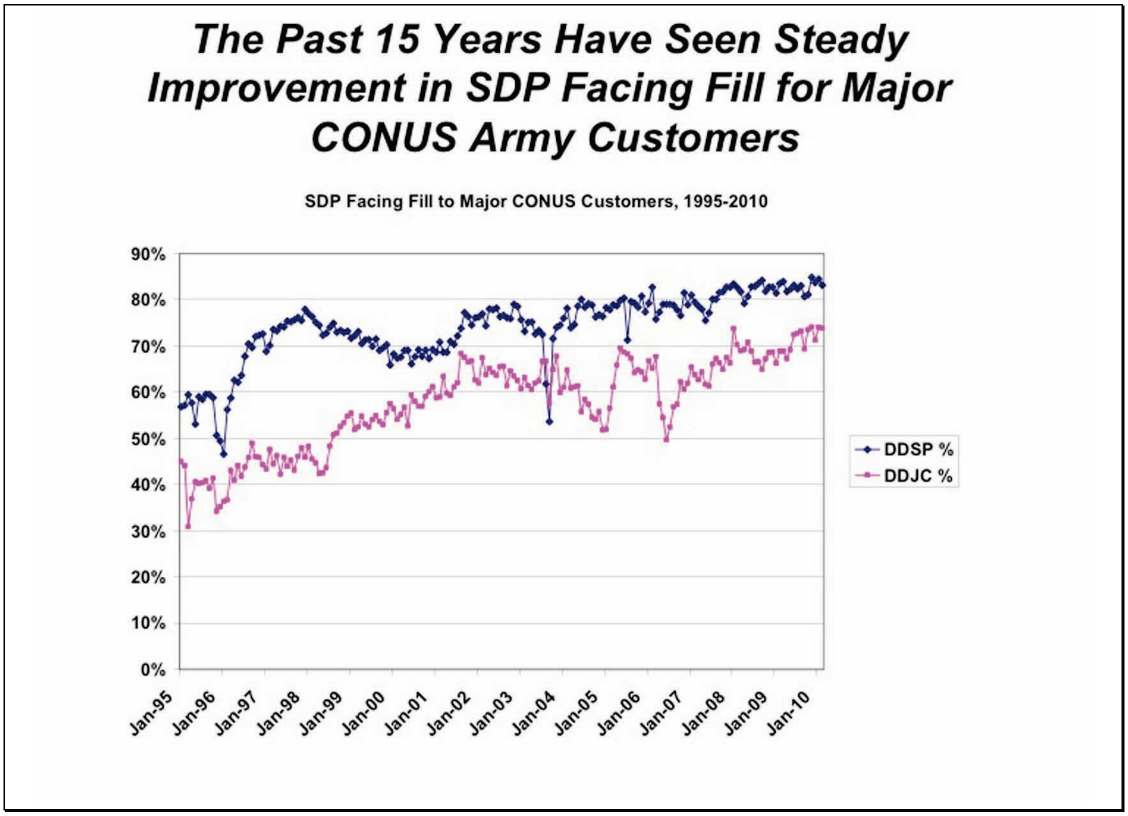
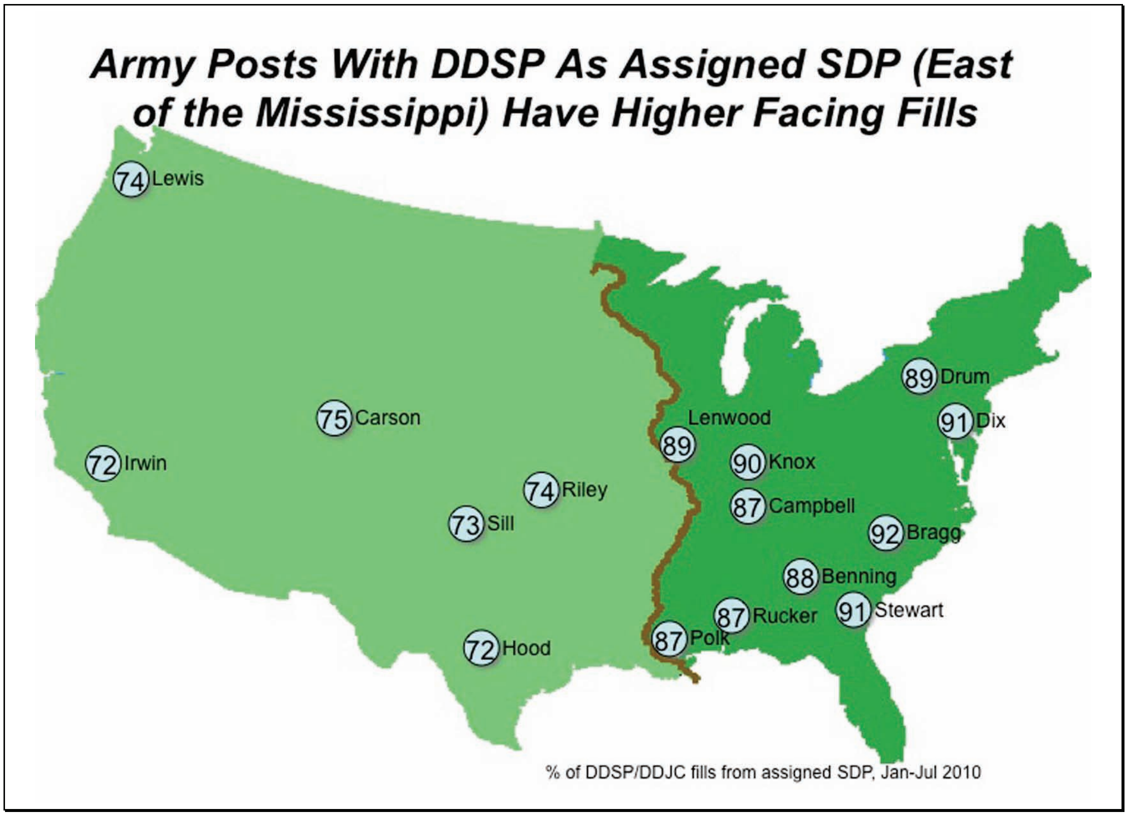
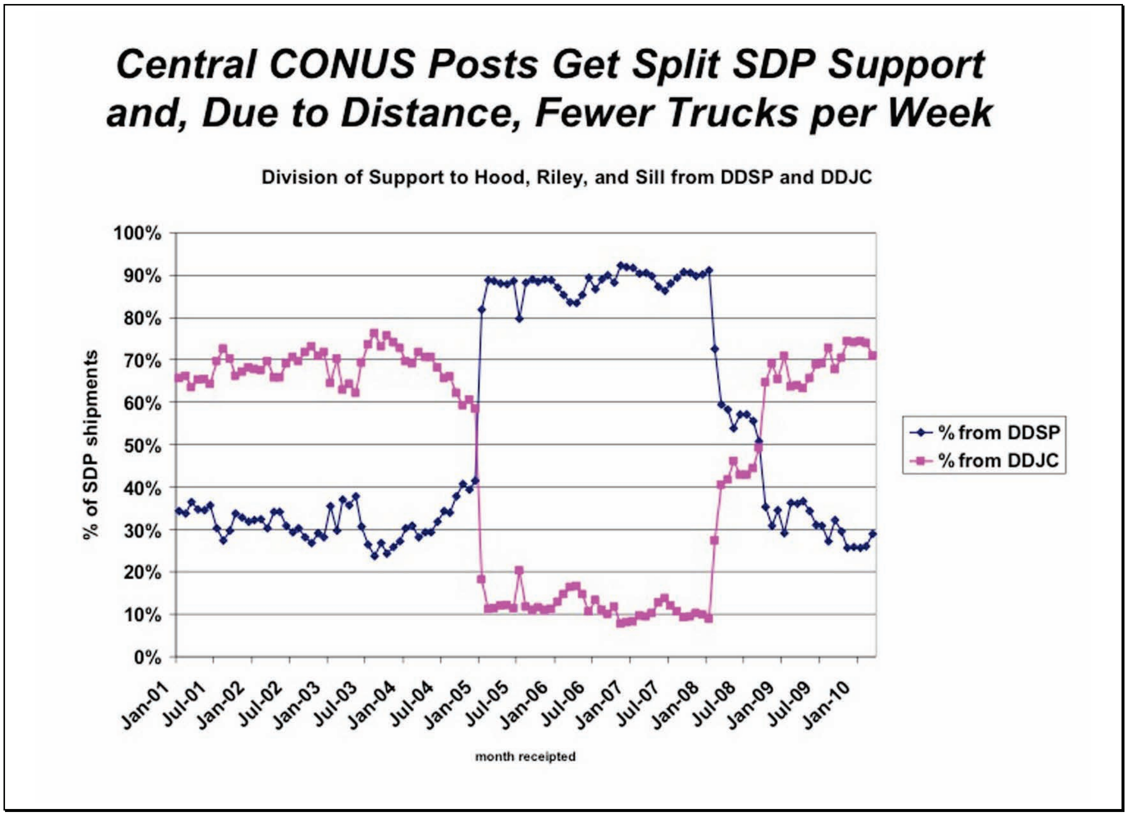
[7] The top 20 CONUS Army locations by demand volume are Forts Hood, Bliss, Bragg, Irwin, Lewis, Knox, Carson, Leonard Wood, Campbell, Polk, Benning, Stewart, Drum, Sill, Rucker, and Riley, along with Anniston Army Depot, Blue Grass Army Depot, Corpus Christi Army Depot, and Red River Army Depot. They account for 57 percent of shipments and 52 percent of weight demanded by all Army units in CONUS.



One sign of continuing improvement in distribution processes is seen in SDP fill rates for their assigned customers. As mentioned, the Army and DLA set a target of 85 percent customer fill of DLA-managed items from their assigned SDP; the figure above indicates that that is becoming a reality. It shows a 15-year trend in facing fill rates (that is, percent of shipments from DLA depots to customers issued from the assigned SDP) for DDSP and DDJC to the top twenty Army posts in CONUS. DDSP is already achieving the 85 percent mark, and DDJC, while still falling somewhat short, has shown continual progress. Facing fill improvements in the early days of Velocity Management came from manual processes to stock inventory in the right place and at the right depth. More recently, DLA's new management information system, the Enterprise Business System (EBS), which came on line in 2007, has automated processes that manage SDP stockage levels better, resulting in higher facing fill without the need for manual intervention.



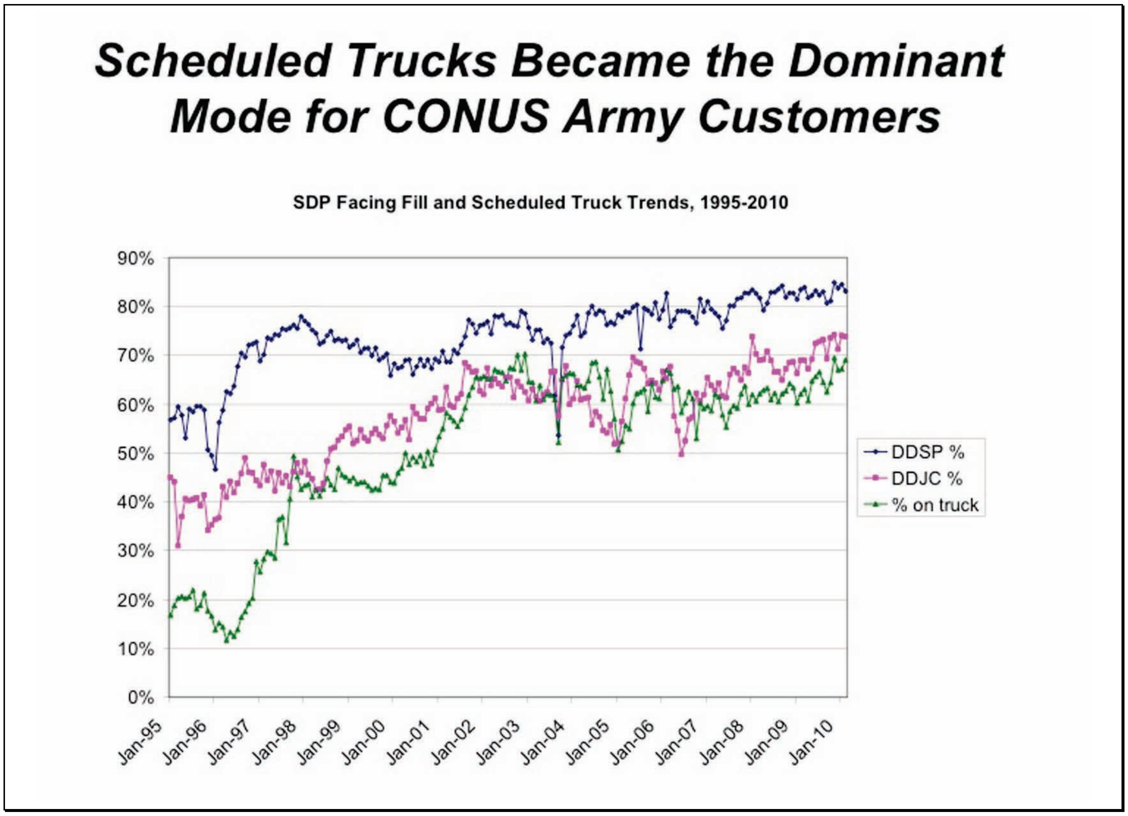
As noted before, SDP facing fill from DDSP is noticeably higher than that from DDJC. There are various reasons for this, including different demand bases (that affect the breadth and depth of stock that can be held) and the concentration of vendors in the eastern part of the United States (which can affect replenishment transportation costs and may contribute to more stock being held at DDSP). The result of this gap is that customers in different parts of the country receive different levels of support from their assigned SDPs. Currently, CONUS SDP support is split roughly at the Mississippi River, with resulting differences among major Army customers, as the figure above shows.



In order to balance workload between the two SDPs over time, DLA sometimes changes SDP assignments for central CONUS posts. That means an Army post can go from a very high SDP facing fill (from DDSP) to a substantially lower one (from DDJC), with the remainder made up from the other SDP. The above figure shows that pattern for Forts Hood, Riley, and Sill in central CONUS, where DDJC was the assigned SDP prior to 2005, then DDSP played that role through 2007, after which the SDP assignment reverted back.

Splitting the workload, and the distance from the central CONUS to either SDP, drives down the frequency of trucks. For example, in 2009, Fort Hood had somewhat more cargo moved via scheduled truck than did Fort Bragg (3.5 million pounds versus 3.3 million pounds) but only had 287 scheduled truck departures compared to 351 for Fort Bragg, and, more to the point, had 121 from DDSP and 166 from DDJC. The frequency of trucks per

week from either SDP was far lower for Fort Hood than for Fort Bragg, which received all its scheduled truck cargo from DDSP.



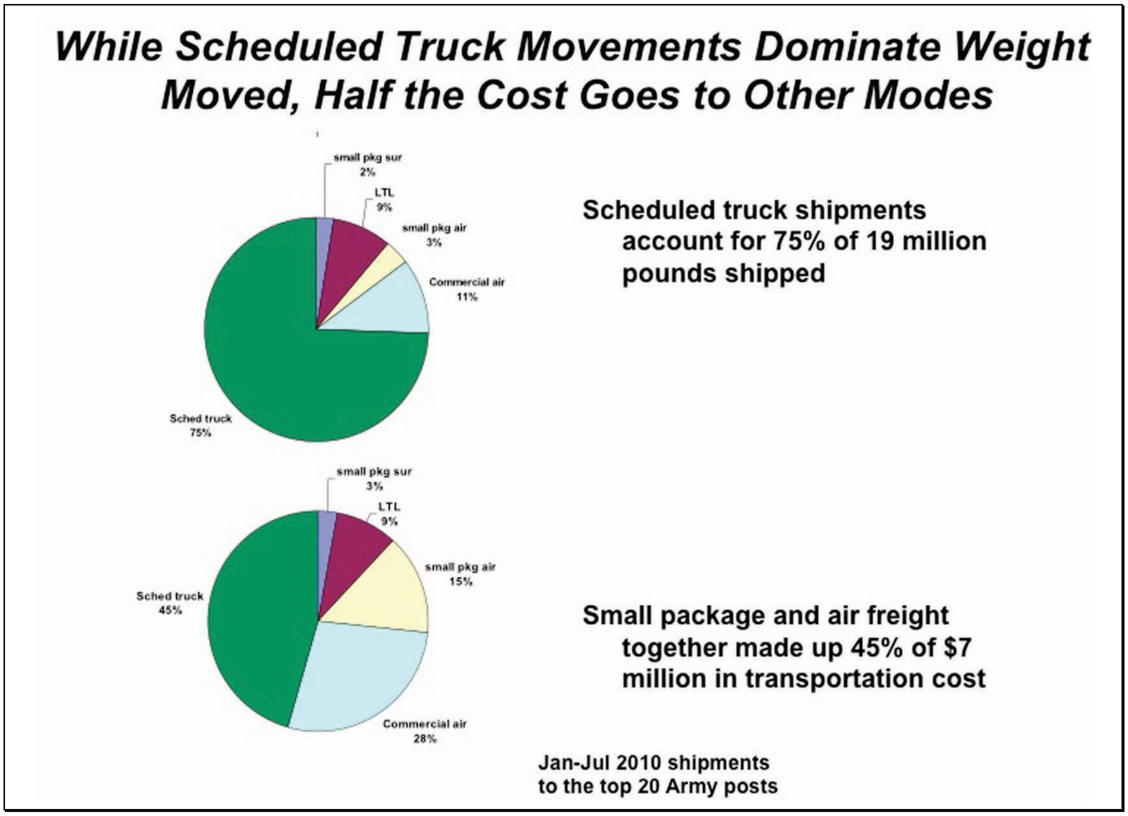
Higher facing fills facilitate the expansion of scheduled truck usage, as the figure above indicates. It also shows, however, a weakening of that tie in recent years, as the percentage of DDSP/DDJC shipments going via scheduled truck flattened after 2003 even as the facing fill at both SDPs increased. That is, the distribution network was not leveraging improvements in facing fill to reduce cost and improve responsiveness to the maximum extent.

3. Sources of "Leakage" from the Truck Network

Outline

- Background
- Facing fill and scheduled truck performance
- **Sources of "leakage" from the truck network**
- Issues in scheduled truck performance
- Potential actions for strengthening/expanding the truck system

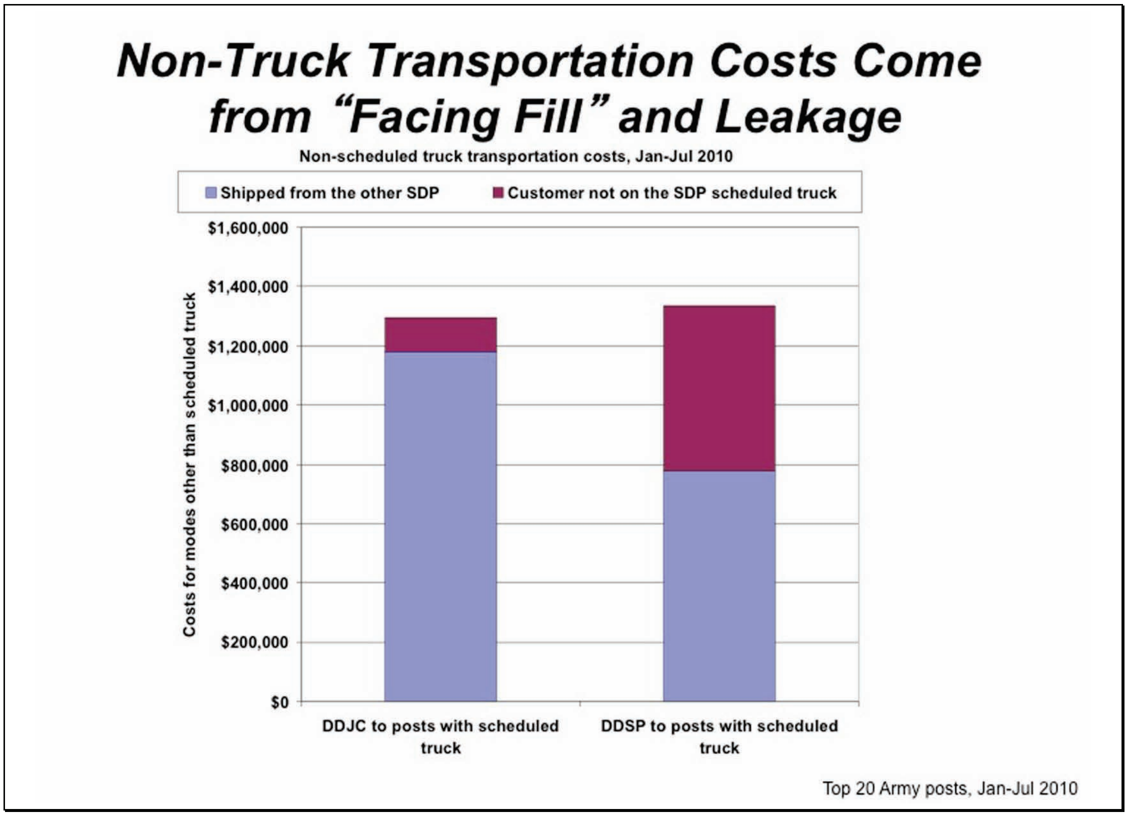
This section attempts to identify the major sources of "leakage" from the scheduled truck system.



The chart above summarizes the present scale of scheduled truck coverage for major CONUS Army posts. Scheduled trucks dominate the volume moved by weight, accounting for 75 percent of pounds shipped from the two SDPs to these twenty major locations. However, for reasons to be discussed below, many shipments, especially small ones, are not moved via the scheduled truck. One result is an imbalance of costs: shipments by other than scheduled truck account for 55 percent of transportation costs from the SDPs to these posts, even as they only account for 25 percent of shipment weight.

Use of modes other than scheduled truck can occur for any of three reasons:

- **Facing fill shortfalls:** the demanded item is not issued from the customer's supporting SDP.
- **Leakage:** the supporting SDP issues the item but it does not go on the truck servicing the Army post.
- **No truck service:** there is no scheduled truck service from the SDP to the Army post.



This chart gives an indication of the 55 percent of transportation costs incurred when using shipping modes other than scheduled truck for major Army posts served by scheduled truck. It indicates the effects of both "facing fill" shortfalls—trucks can't be used because the fill comes from the "wrong" SDP that does not serve the post on a scheduled truck route—and "leakage"—there is a truck from the SDP to the post but the shipment goes via another mode.

For each SDP it shows the transportation costs incurred for cases where the SDP services an installation via scheduled truck for all shipments from either that SDP or the other one when the shipment goes via other modes.[8] In the first column, posts with scheduled trucks only from DDJC, most (~$1.2M

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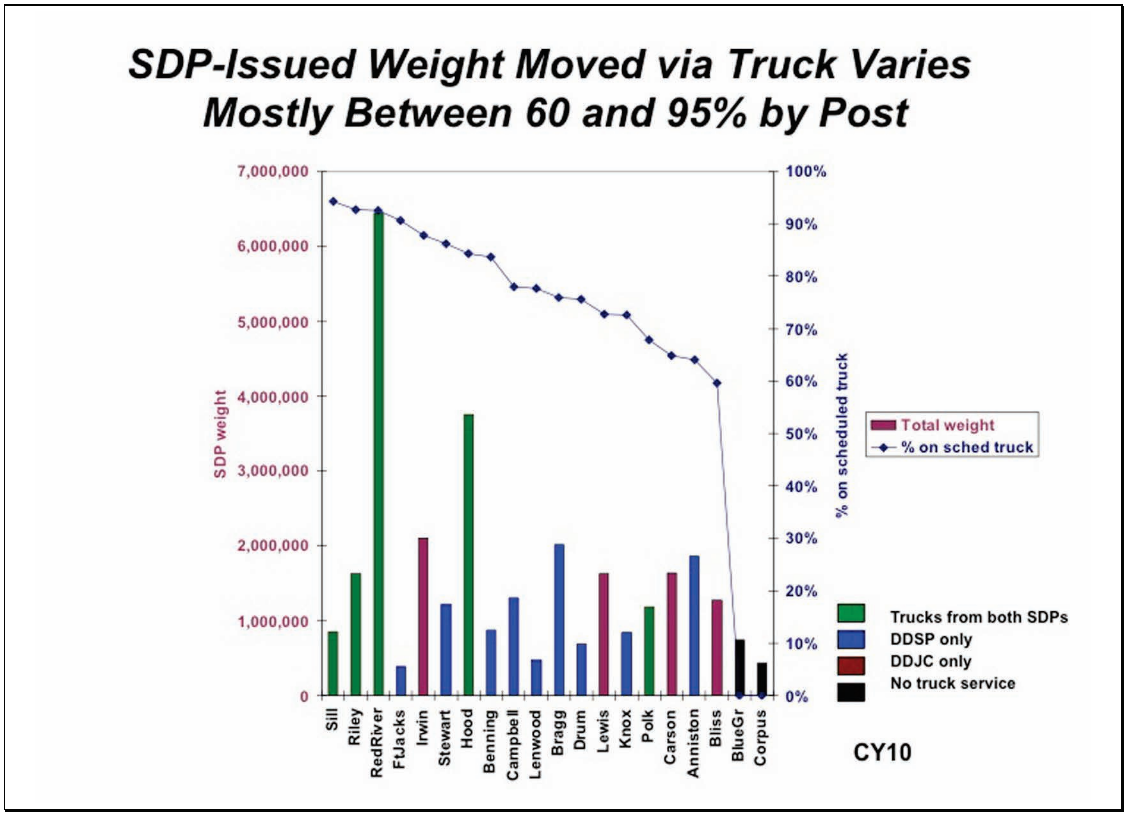
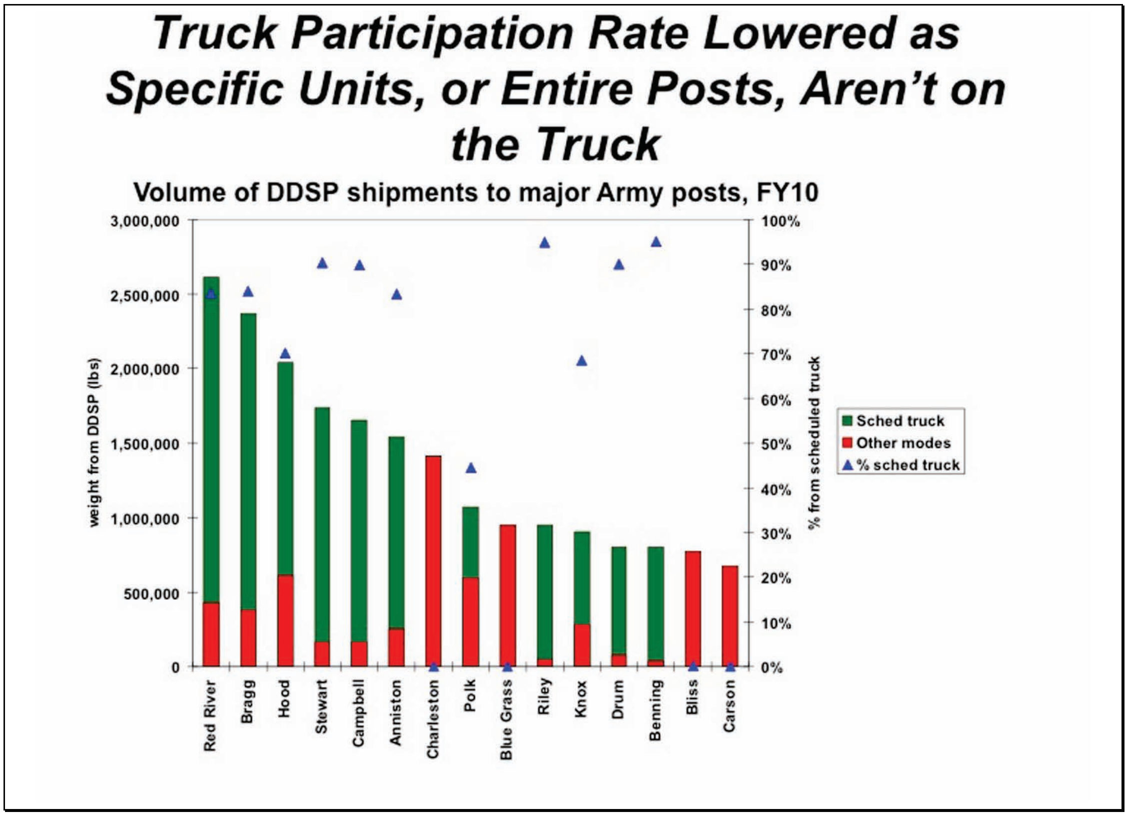
[8] For purposes of clarity, we exclude cases in which both SDPs ship via scheduled truck to the same installations.

of the $1.3M) of the nonscheduled truck transportation costs are associated with facing fill shortfalls, that is, when shipments leave from DDSP rather than DDJC (there are additional costs associated with shipments from other distribution centers, but this chart is limited to shipments from the two main SDPs). The second column shows that for posts with scheduled trucks only from DDSP, leakage is as large a problem as facing fill.

For DDJC, there is relatively little leakage, but the lower facing fill for DDJC customers results in a relatively large proportion of shipments coming from DDSP. For DDSP, by contrast, facing fill is higher, so those costs are proportionally lower, but there are more cases of alternative shipping modes being used out of DDSP to installations served by scheduled trucks.



There is a considerable range across the major Army posts in terms of weight going via scheduled truck, for the two reasons just discussed. The percentage is especially high at locations with truck service from both SDPs—like Forts Sill and Riley (though less so at Fort Hood, which also gets DDSP and DDJC trucks). Most posts receive between 60 and 80 percent of total SDP-shipped weight via truck, with two of the top Army locations by weight (Blue Grass Army Depot and Corpus Christi Army Depot) not being served by SDP scheduled trucks at all.

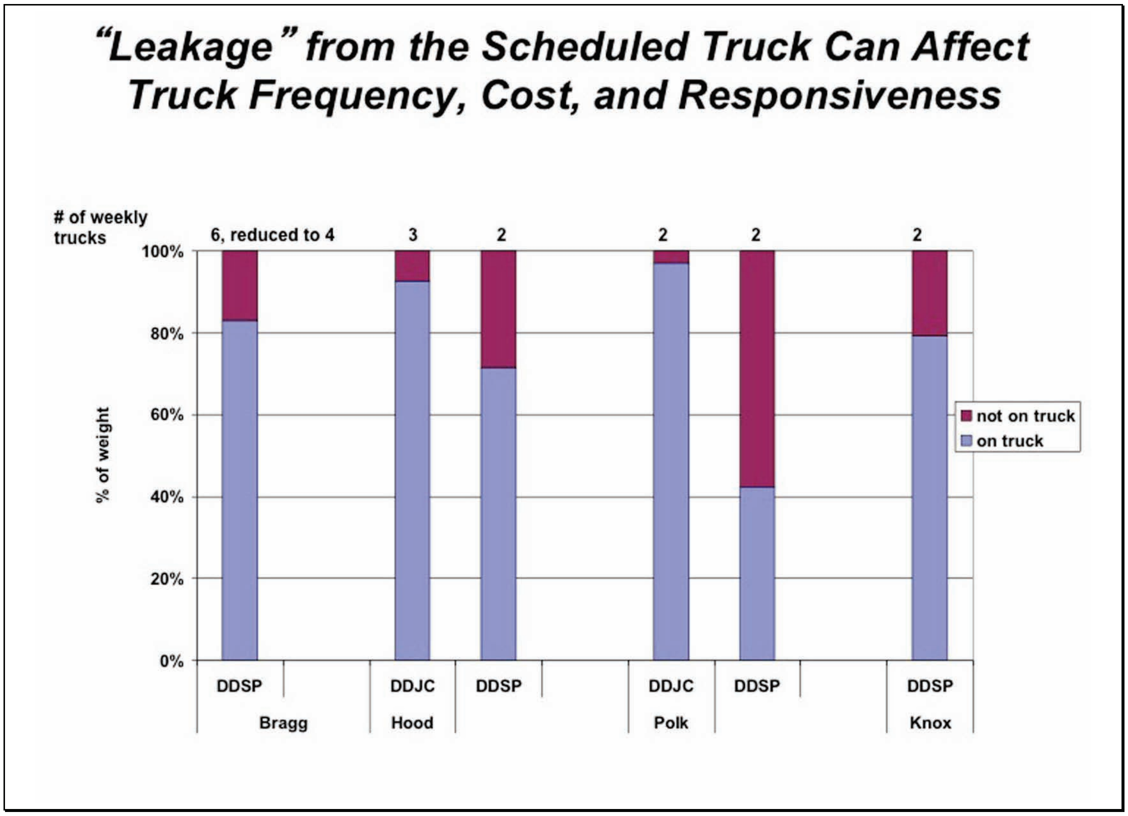


As noted above, the leakage from scheduled truck routes primarily affects customers of DDSP. Another source of shortfalls in scheduled truck volume is when major Army posts and locations get no scheduled truck service at all. This chart illustrates the scope of both these effects. It shows total shipments by weight from DDSP to its top 15 Army recipients in FY10.[9] It breaks total weight into that moved via scheduled truck and via other modes, and the percentage of total weight moved via scheduled truck. While some posts receive more than 90 percent of weight via the truck, the percentage varies from 70 to 90 percent or, in the case of Fort Polk, to under 50 percent. Two major Army customers of DDSP in the eastern half of CONUS—Blue Grass Army Depot

[9] DDSP is not the assigned SDP for Forts Hood, Riley, Bliss, and Carson, even though those posts are among DDSP's top 15 Army recipients.

and Charleston[10]—are not served by scheduled truck, while two of DDSP's largest 15 customers, Forts Bliss and Carson, are in the western part of CONUS and are also not served via truck.

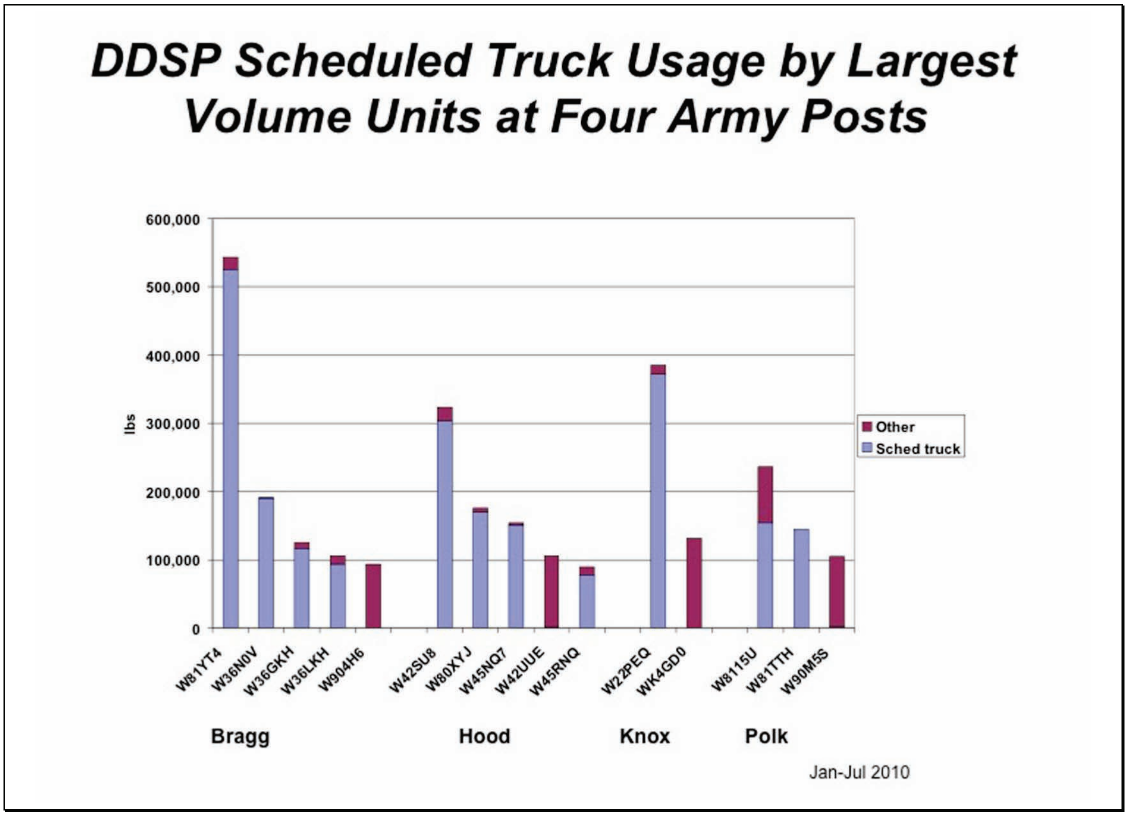
[10] Goose Creek, South Carolina, near Charleston, is the home of the Army Sustainment Command's Combat Equipment Base Afloat (CEBA) facilities.



The cost and responsiveness of the trucking network can be affected by this leakage. All else equal, the more volume that can be put on the truck route, the more frequently trucks can be sent, increasing responsiveness, or the lower the cost incurred. When a post is served by a truck but specific units or shipments are not included, the efficiency and effectiveness of the system is degraded. Similarly, when entire locations are not on a truck route, their volume is not aggregated with destinations on the same potential route that may be getting truck service, further limiting opportunities for increasing frequency or lowering cost (or both).

The chart above provides illustrations of the first type of leakage, where significant volumes of shipments to posts served by a scheduled truck are not on the truck, broken out by SDP across four Army posts. In the case of Fort Bragg, which had been getting trucks almost every day (until recent deployments led to a reduction in truck frequency) with next-day delivery, still almost 20 percent of the volume did not go via truck. At Forts Hood and Polk

there is much more leakage from the trucks coming from DDSP than from DDJC. Fort Knox shows a leakage similar to Fort Bragg; this missing volume no doubt contributes to the fact that there are only two trucks per week to support Fort Knox from DDSP.



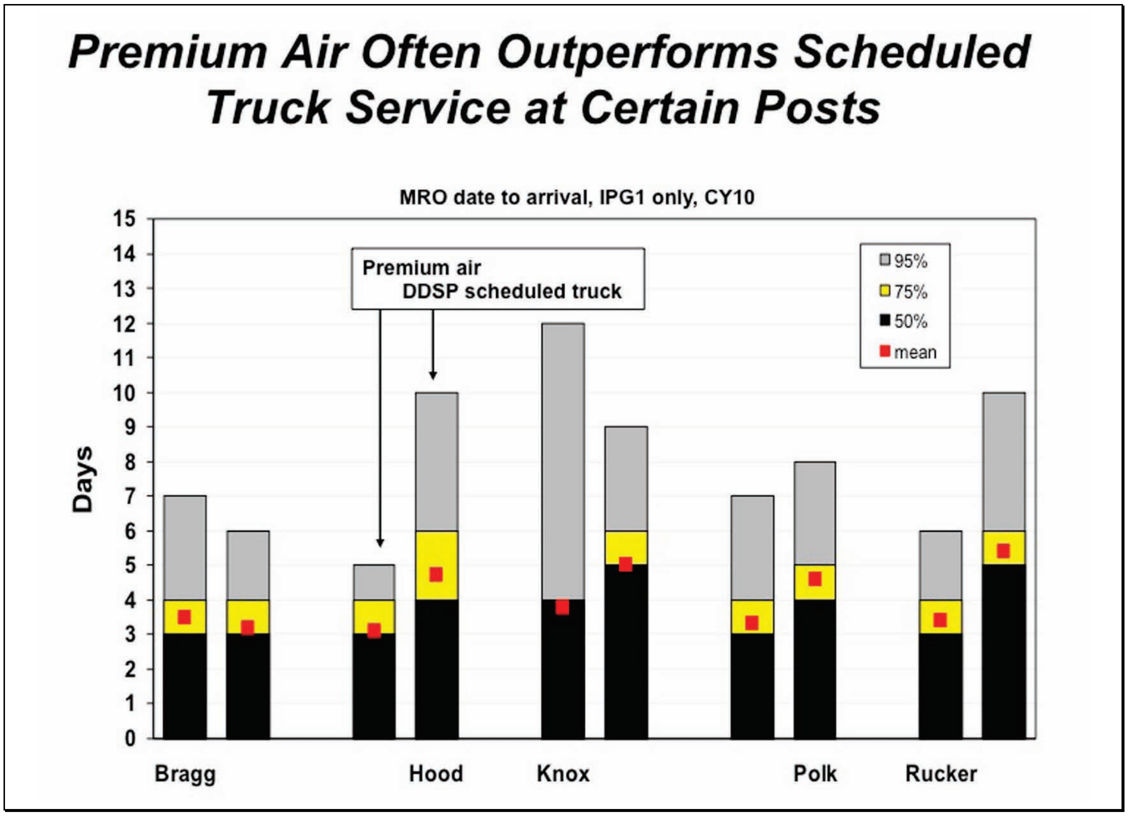
In general, at these four posts, units are either entirely served by the truck or not; there is little evidence that there is leakage within a given unit. The chart above shows the largest units at the four. Among these top customers, there is one unit at each post not on the truck. Among the others, the amount of nonscheduled truck shipments is very small, with the noticeable exception of one unit at Fort Polk, where W8115U gets all high-priority requisitions via premium air, with low-priority shipments moved via scheduled truck.

4. Issues in Scheduled Truck Performance

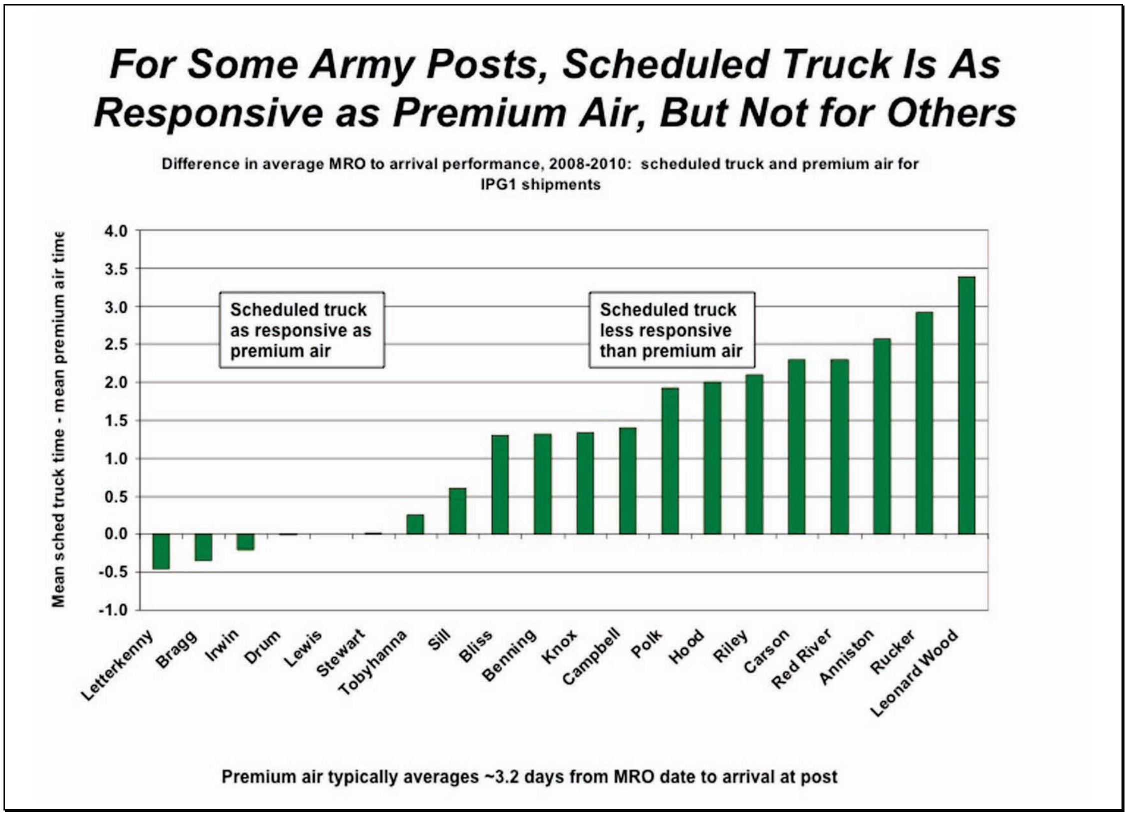
Outline

- Background
- Facing fill and scheduled truck performance
- Sources of “leakage” from the truck network
- **Issues in scheduled truck performance**
- Potential actions for strengthening/expanding the truck system

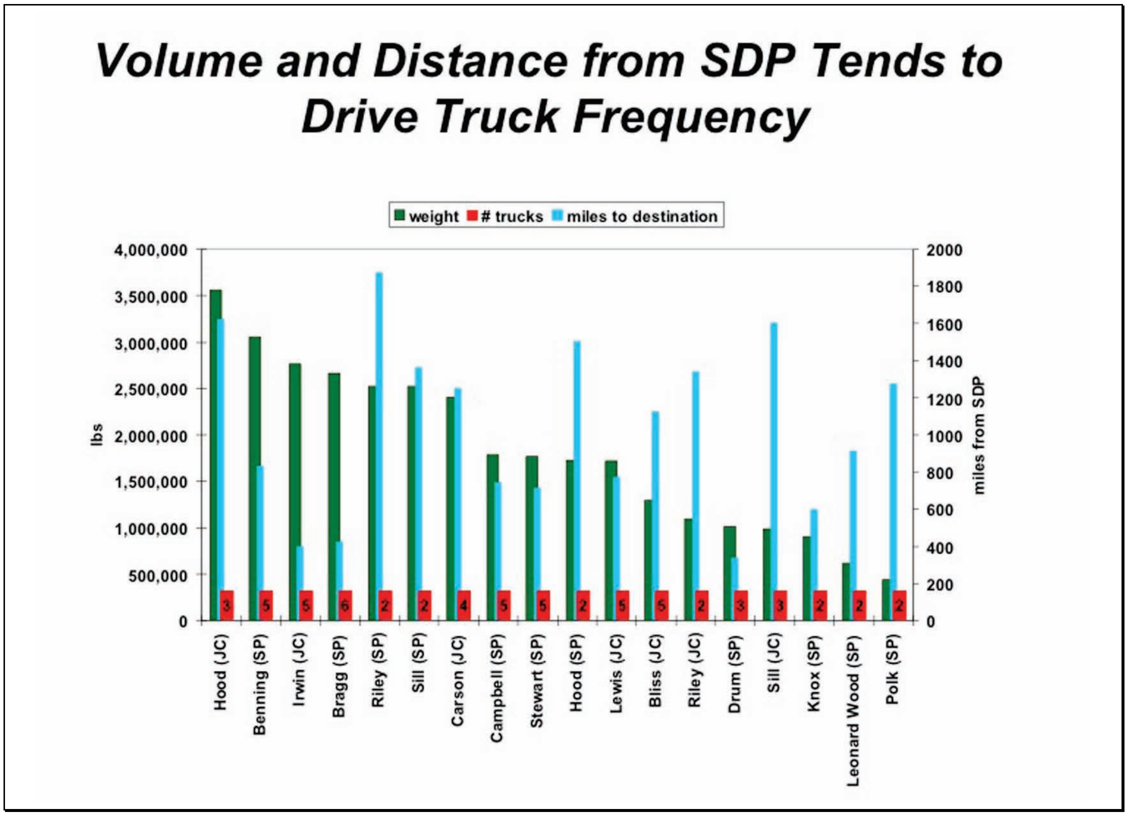
This section examines performance aspects of the scheduled truck system, comparing it to premium air performance and analyzing components of the system, including truck frequency, how often shipments go on the next scheduled truck, and transit times.



As the Fort Polk example suggests, if scheduled trucks are not seen as responsive enough, customers may opt out of the system, either entirely or at least for high-priority shipments. A high-frequency truck route to destinations within a day's drive should perform at least as well as premium air services like FedEx next-day air, and at lower cost. In some cases, we see that happening; in other cases, however, scheduled trucks are not as responsive as premium air, as we see for five Army posts in the chart above.



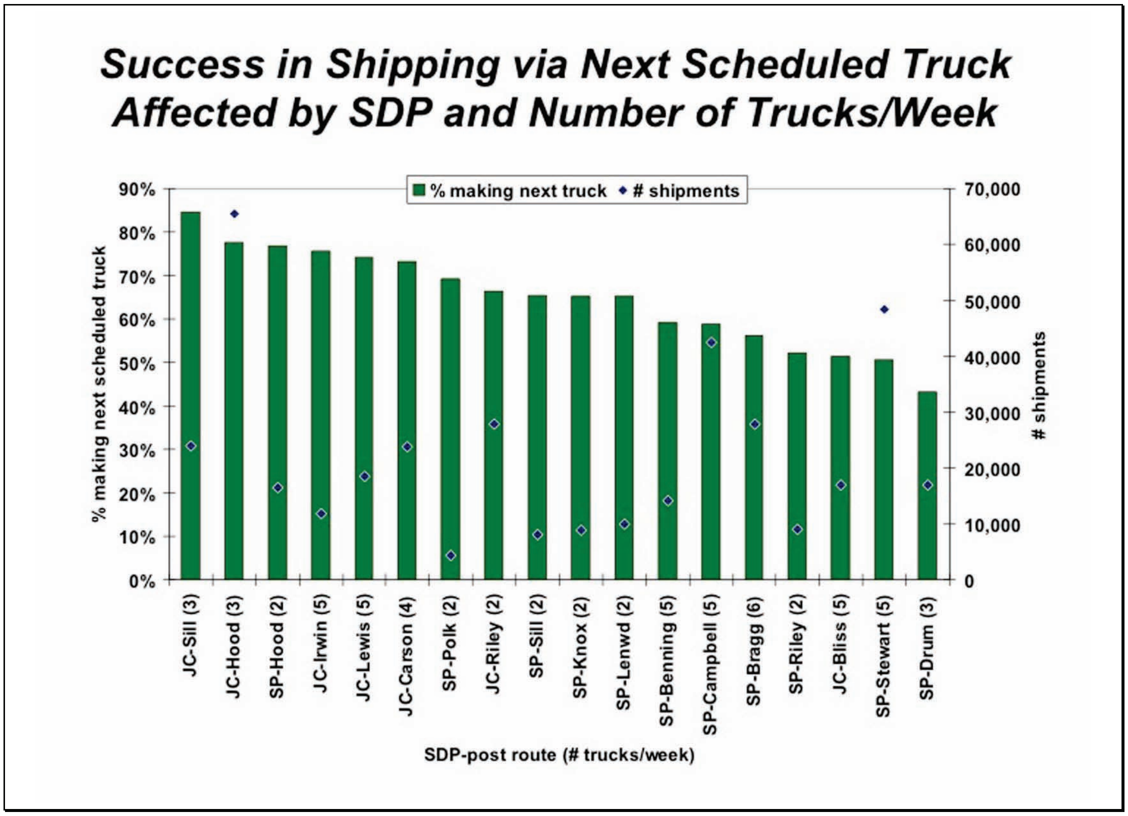
This chart generalizes the illustration made on the previous chart. It shows for major Army posts the difference between average response time (here measured from the time the materiel release order is produced until the shipment arrives at destination) between premium air and scheduled trucks. Negative numbers indicate that trucks are more responsive, positive numbers that premium air is faster. In some cases, primarily those closest to the SDP, scheduled trucks outperform premium air, but in the majority of the cases they do not, in some cases by a considerable amount.



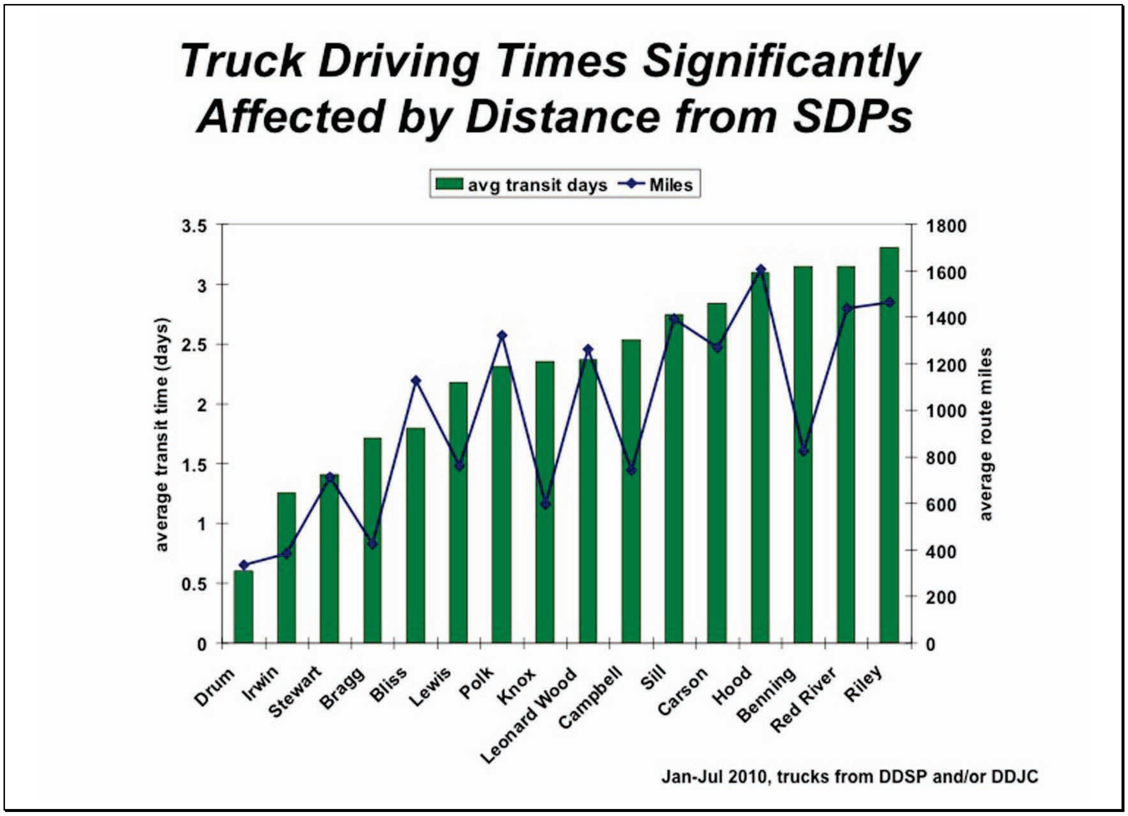
Scheduled truck responsiveness is driven primarily by three factors: the number of trucks departing each week, the time to drive to the location, and the SDP's success in getting materiel onto the next scheduled truck as quickly as possible.

Truck frequency is largely driven by distance and volume moved. This figure attempts to relate those factors to truck route frequency in FY10. High volume and short distance can facilitate frequent departures, as illustrated by DDSP support to Fort Bragg. A destination not as close to DDSP as Fort Bragg, like Fort Benning, can have frequent deliveries if the route volume is increased by multiple stops; the Fort Benning route includes stops at Camp Lejeune and Cherry Point, North Carolina, resulting in higher frequency but necessitating a second driving day to reach Fort Benning. On the other hand, a relatively high-volume route, like the DDSP truck to Fort Riley (which also includes stops at Fort Sill and Tinker Air Force Base), only has two trucks per week due to the distance. In the middle is Fort Drum which, while very close to

DDSP, still gets only three trucks per week because of very low volume. Fort Hood truck frequency is driven both by distance and by fragmentation. It is very far from both SDPs and because its shipments are split between DDJC and DDSP, it only gets three trucks per week from the former and two from the latter.



Scheduled truck responsiveness is also affected by SDP processes, especially SDP success in pulling, packing, and processing materiel as quickly as possible to get it on the next departing truck. The chart above gives some indication of the variability in that success rate. It shows the percentage of shipments making the next scheduled truck for major truck routes. Generally, the fewer departures per week the greater the success rate, but this is not always the case. It shows that in general between 60 and 80 percent of shipments make the next truck, but several fall below 60 percent.



The last primary determinant of scheduled truck responsiveness is driving time from the SDP to the final destination. As the chart above indicates, there is considerable variability in average departure to arrival times, with the longest times coming for posts in central CONUS, and a relatively strong correlation with miles traveled.[11]

[11] Fort Benning is the terminus of a multi-installation route from DDSP, with stops at Camp Lejeune and Cherry Point, North Carolina before the truck proceeds, on its second day, to Benning.

5. Potential Actions for Strengthening/Expanding the Truck System

Outline

- Background
- Facing fill and scheduled truck performance
- Sources of “leakage” from the truck network
- Issues in scheduled truck performance
- **Potential actions for strengthening/expanding the truck system**

The final section summarizes the report and offers recommendations.

Possible Strategies for Strengthening the Scheduled Truck Network

Near-term actions

- **Add new destinations to existing truck routes**
- **Add customers not on the truck at posts served by scheduled trucks**
- **Scrutinize reasons for using other shipping modes for customers mainly supported by scheduled trucks**
- **Improve SDP processing times**

Longer-term actions

- **Cross-dock non-SDP shipments through CCPs onto scheduled trucks**
- **Facilitize new regional SDPs to support local customers via scheduled trucks**

There are both near-term and more ambitious longer-term actions process owners in collaboration with their customers can take to strengthen and expand the scheduled truck network to both reduce its costs and increase its responsiveness.

Near-term actions:

- **Add new destinations to existing truck routes.** Locations currently not served by trucks but that are located on or near currently existing routes may be added to increase the volume on the route and so reduce cost and/or increase the frequency. There is a tradeoff between the number of stops along the way and route efficiency; if the volume added per stop is too low, it may not be worthwhile, especially if the requirement to stop substantially delays arrival for larger customers. An example of such an addition is given on the next chart.

- **Add customers not on the truck at posts served by scheduled trucks.** Units at truck-served Army posts should be supported by those trucks, both to save money and also to increase robustness (and potentially frequency) of service to the remaining customers on those posts. The Army needs to work with DLA and USTC to determine the reasons that units are not included on trucks and the process by which their participation is determined.
- **Scrutinize reasons for using other shipping modes for customers mainly supported by scheduled trucks.** For most units served by trucks, the percentage of their SDP shipments not on the truck tends to be fairly low. In rare cases, such as at Fort Polk, high-priority shipments do not go on the truck, whereas others do. Apart from those clear-cut cases, the Army needs to work with DLA to determine the reasons for this type of "low-level" leakage and work to minimize its occurrence.
- **Improve SDP processing times.** Getting pulled shipments on the next departing truck should be a focus of DLA process improvement efforts, especially for high-priority requisitions.

These steps would likely have a moderate effect on scheduled truck comprehensiveness and performance. More significant improvements could be achieved by some more far-reaching changes. One might yield much greater volume on individual routes, lowering costs and improving responsiveness, while another could greatly shorten truck route distance, with the same effect.

Longer-term actions:

- **Cross-dock non-SDP shipments onto scheduled trucks.** In addition to SDP shipments, units receive deliveries via multiple shipping modes from GSA and direct from vendors, as well as other sources. Where feasible, it may be worth exploring the possibility of

routing shipments from these sources through the SDP and onto scheduled trucks.[12] Not only could this reduce overall cost from the system point of view, but it would simplify processes for customers who, in the best case, would receive all their orders in a single delivery. If the increased volume led to sufficient frequency, the cross-docked shipments from other sources might move more quickly than before. This may work better in some cases than others. For example, the two main GSA depots are located in close proximity to DDSP and DDJC and would incur limited extra travel time to ship via the SDPs. In other cases, such as for some direct vendor delivery items, the SDP may be too far away relative to the customer location.

- **Facilitize new regional SDPs to support local customers via scheduled trucks.** BRAC recommendation-based laws established two new SDPs in central CONUS (Oklahoma City) and the southeast (Warner-Robins). The two are slated to play less comprehensive roles than DDSP and DDJC, primarily focusing on resupplying Forward Distribution Depots in their regions collocated with service repair depots. If in the future resources were made available to facilitize these two as fully capable SDPs, with a target of 85 percent facing fill for their assigned regional customers, support to customers in their regions could be greatly improved. This would especially benefit central CONUS locations, which, as shown, tend to have less frequent trucks with longer delivery times.

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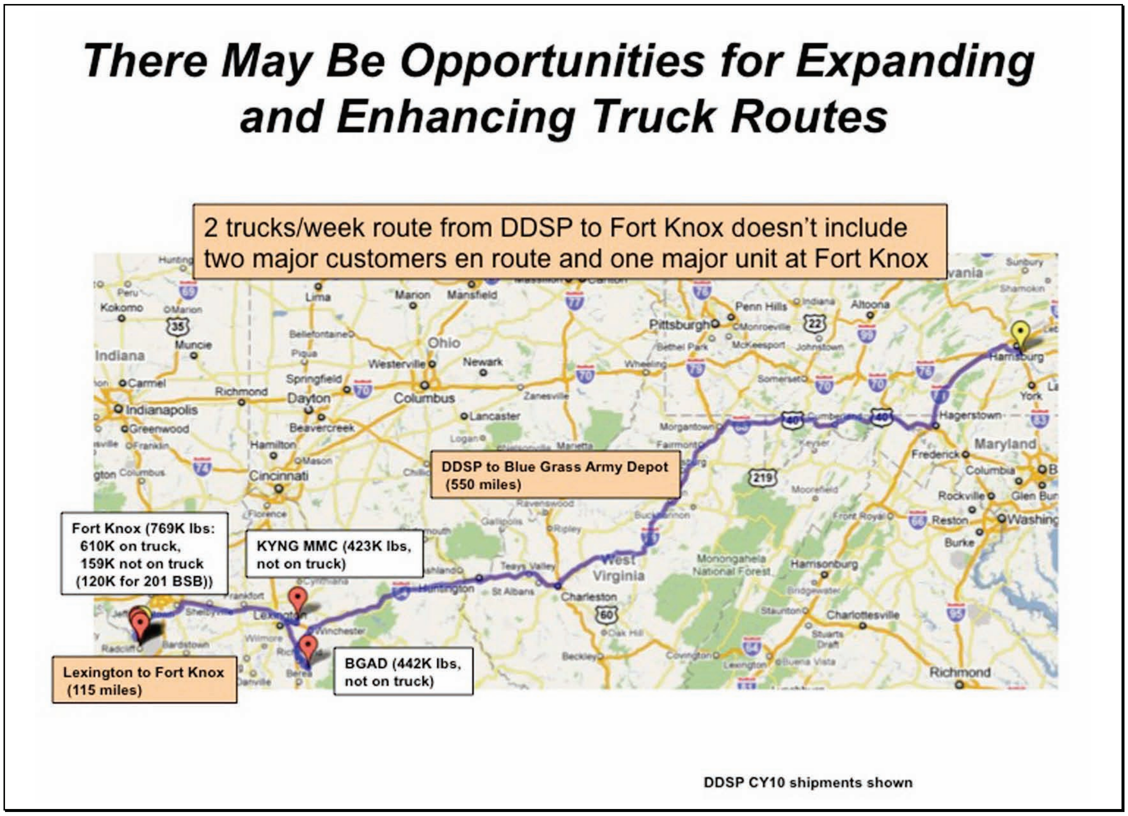
[12] This would entail routing shipments through the SDP consolidation and containerization point (CCP) and then on to truck lanes. Currently, the CCP is not set up to sort shipments for CONUS destinations; doing so may require changes in management systems.



By adding customers or new stops on routes, the system can both lower costs and improve responsiveness via increased truck frequency. This chart illustrates possible improvements in the DDSP scheduled truck to Fort Knox, Kentucky.

DDSP currently operates two trucks per week to Fort Knox. About 20 percent of Fort Knox demand from DDSP is not on the truck, however, with most of that being ordered by the 201st Brigade Support Battalion, supporting the 3rd Brigade Combat Team, which stood up at Fort Knox in October 2009.

It is not clear why the 201st BSB did not get included on the truck, whether that was a conscious decision by that unit (possibly driven by responsiveness issues) or if the process managers did not respond to the new units standing up at Fort Knox last year. But it is clear that the low-frequency truck route does provide lower responsiveness than alternatives, such as premium air. For high-priority requisitions to Fort Knox, the time from

materiel release order at the depot to arrival on post averages six days for DDSP scheduled truck and three days for premium air.

Adding volume to the truck could result in increased frequency and narrow that gap. Including the 201st BSB, at 16 percent of total weight from DDSP to Fort Knox, would have a moderate effect and might lead to an extra truck per week. Of much greater impact would be to set up stops along the way of major Army customers that are not currently served by DDSP trucks. As the chart above shows, neither Blue Grass Army Depot nor the Kentucky National Guard Materiel Management Center, both in the vicinity of Lexington and en route to Fort Knox, are served by the truck, yet their combined volume exceeds the total volume currently going on that truck. Including those two destinations, as well as the 201st BSB, might justify increasing truck frequency from two to five trucks per week and eliminate most of the gap between premium air and scheduled truck responsiveness. This would have no adverse effect on deliveries to Fort Knox. Due to distance, the DDSP truck requires two days of transit time; the stops in the Lexington area could be made on the first transit day, with arrival at Fort Knox still occurring on the second day, as it does now.

Additional analysis would be required to evaluate other possible route additions and to weigh the benefits and drawbacks of adding new stops to existing routes. While most major Army locations are already served by trucks, there may still be possibilities for improvement. In addition to Fort Knox, the Charleston CEBA case would warrant looking into (possibly adding it as a stop to the once-per-week Fort Jackson, South Carolina truck). Removing Fort Benning from the route currently stopping first at Cherry Point/Camp Lejeune to one going direct to Fort Benning and then on to the Marine Corps operation at Albany, Georgia might yield more cost-effective and responsive performance. More possibilities may emerge with detailed analysis.

Observations and Recommendations

- **Since 1995, the SDP-centered scheduled truck system been a success**
  - **Lower costs, faster performance, more dependability**
  - **Able to match premium air performance, especially for high-frequency routes close to the SDP**
- **The Army should set policy guiding scheduled truck usage**
  - **For posts served by scheduled truck, require participation without an explicit waiver**
    - **Accompanied by metrics and reports by designated Army agency to monitor compliance and system performance**
- **DLA/Army/DTCI collaboration can help identify and implement system improvements**
  - **Ongoing analysis to identify new possibilities**
  - **Army notify partners of upcoming customer movements**
- **While strong now, the scheduled truck system could gain even more value via the cross-docking or four-SDP concepts**

The scheduled truck network first implemented via Army/DLA cooperation in the mid-1990s is an undoubted success. Its continuity over the past 15 years, through times of major deployments, testifies to its inherent robustness.

The Army currently has no policy guiding the use of this network. HQDA G-4 should provide such a policy. Since leakage from units not participating on an existing truck supporting their home station can increase overall costs and reduce effectiveness for their neighbors, the policy should call for all units on a post with scheduled truck service to receive their shipments via the truck unless an explicit waiver has been granted.

The policy should also call for better monitoring by the Army. The Army should designate a capable agency to develop metrics and produce recurrent reports on the health of the scheduled truck network. This would include facing fill metrics (based on the standard agreed to in the Army/DLA PBA),

identification of posts and major locations not on the truck, and the amount of leakage on Army posts from units not participating in the truck network.

The Army should work closely with DLA and, as necessary, with process managers associated with USTC's Defense Transportation Coordination Initiative (DTCI) to make necessary changes in the truck network, whether that includes new units coming on-line at CONUS posts or adding new locations to existing (or new) truck routes.

Finally, as discussed previously, more far-reaching changes could have a dramatic effect on DoD's use of scheduled trucks. By implementing cross-docking ideas at the SDPs and routing most shippers' packages through CCPs and onto scheduled trucks, the system might achieve much lower costs and increased responsiveness across the range of materials ordered by CONUS customers. Similarly, providing the resources to make the two new regional SDPs fully functional could yield a far stronger scheduled truck network, with additional cost and performance improvements.

Appendix: Participation in Scheduled Truck Service, FY10

This appendix gives information about scheduled truck coverage for CONUS posts, bases, and units in FY10 and serves to indicate areas for potential improvement, including reducing leakage by identifying units not supported by the truck on posts that are on a scheduled truck route and major posts and bases not currently served by scheduled trucks. More detailed analysis and collaborative efforts between process managers and stakeholders, including the units themselves, would be required to determine how to add additional units to existing truck routes, which posts and bases should be added to the scheduled truck network, and how and when routes should be realigned among participating locations.

Table A.1 shows participation in scheduled truck service by Army post, for those posts with truck service. Using information from DLA's Distribution Support System (DSS) GBH files (which provide data on government bill of lading shipments), it shows the total weight shipped from the assigned SDP, or SDP with a truck to the post, the weight that went on the truck, and the percent of weight moved via scheduled truck, from highest percentage to lowest.[13] This table illustrates the role of leakage in the scheduled truck network. A reduced percentage can come from units not participating in the truck service at all, from certain priorities being excluded, from individual shipments not being put on the truck for other reasons, and so forth.

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[13] The table excludes weight moved via full truckload (shipmode A). This typically represents unique or one-time loads, often to a single consignee where a spike in volume allows ordering a single full truck to ship the items. Since these do not tend to represent recurrent demands, they do not represent a "leakage" from the scheduled truck service.

Table A.1
Percent of SDP Shipped Weight Moved by Truck for Posts with Scheduled Truck Service, FY10

Location	SDP	Scheduled Truck	Other Modes	Total	Percent via Sched Truck
Benning	DDSP	889,945	38,528	928,473	96%
Irwin	DDJC	855,550	43,319	898,869	95%
Bliss	DDJC	681,761	43,423	725,185	94%
Lee	DDSP	211,233	13,466	224,700	94%
Jackson	DDSP	291,362	18,946	310,308	94%
Anniston	DDSP	1,351,857	97,715	1,449,572	93%
Riley	DDSP	496,136	36,181	532,317	93%
Lewis	DDJC	1,307,411	95,451	1,402,862	93%
Sill	DDJC	177,007	13,465	190,472	93%
Riley	DDJC	440,851	37,232	478,083	92%
Huachuca	DDJC	89,108	8,126	97,234	92%
Campbell	DDSP	1,486,712	147,163	1,633,876	91%
Stewart	DDSP	1,569,058	161,428	1,730,487	91%
Red River	DDJC	740,523	80,246	820,769	90%
Drum	DDSP	724,512	80,291	804,803	90%
Hood	DDJC	1,122,121	130,898	1,253,020	90%
Carson	DDJC	755,582	106,287	861,869	88%
Red River	DDSP	2,202,021	371,337	2,573,358	86%
Bragg	DDSP	1,988,328	366,619	2,354,947	84%
Polk	DDJC	119,951	26,876	146,827	82%
Tobyhanna	DDSP	39,555	10,333	49,888	79%
Sill	DDSP	197,085	51,609	248,694	79%
Letterkenny	DDSP	109,937	29,340	139,277	79%
Eustis	DDSP	229,296	74,864	304,160	75%
Leonard Wood	DDSP	375,444	126,131	501,575	75%
Hood	DDSP	851,262	333,041	1,184,302	72%
Hood	DDSP	580,879	236,902	817,781	71%
Rucker	DDSP	288,202	124,102	412,304	70%
Knox	DDSP	619,635	268,610	888,245	70%
Leonard Wood	DDJC	35,783	33,730	69,514	51%
Polk	DDSP	478,073	537,477	1,015,549	47%
Pickett	DDSP	12,606	24,461	37,067	34%

SOURCE: DSS GBH files, FY10. Shipmode A (full truckload) volume excluded.

Table A.2 presents a DODAAC-level analysis by post to help identify whether or not individual units are included in scheduled truck service. Using numbers of shipments instead of weight, it shows, by post and by DODAAC, the number of shipments coming from each of the two SDPs and the percent of shipments going via scheduled truck. (When the SDP does not run a scheduled truck—such as DDJC to Fort Benning—all DODAACs will show a zero percentage in the column showing percent of shipments from the SDP going via truck.) In most cases, either virtually all or none of the DODAAC's shipments will be on the scheduled truck. A zero indicates a candidate for future inclusion. A moderately high percentage may indicate some rules being applied that exclude certain shipments (such as high-priority demands). The last column on the right shows the FY10 transportation cost for shipments coming from the unit's assigned SDP and using a mode other than scheduled truck (or, in the cases of Hood, Riley, and Sill, which get scheduled trucks from both SDPs, the transportation cost via nonscheduled truck modes from both SDPs). Total nonscheduled truck costs exceeded $2.1 million in FY10, with wide variation among DODAACs.

Table A.2
Major Unit Coverage by Scheduled Truck, FY10

Post	DODAAC	Unit	DDJC % Sched Truck	DDSP % Sched Truck	DDJC Total	DDSP Total	Cost From Modes Other Than Truck
Benning	W33BQ9	ISSD	0%	95%	573	6494	$12,026
Benning	W33RQN	MAINT	0%	92%	179	1306	$2,054
Benning	W81PPN	598 OD	0%	98%	159	1863	$1,097
Benning	W90C9N	SUPPORT MNT	0%	98%	470	6410	$309
Benning	W90DGG	FLRC-Benning	0%	99%	525	7151	$1,232
Benning	W90N90	ILSC MF BAE	0%	99%	1195	12604	$1,123
Benning	W917WB	2-29 IN FLT	0%	96%	36	475	$69
Bliss	W4546F	121 BSB 4BCT	96%	0%	1425	470	$2,971
Bliss	W45NSU	INST SUPPLY	98%	0%	10423	4126	$1,833
Bliss	W45QML	DOL	99%	0%	11800	3285	$1,774
Bliss	W806D7	ECS 87	99%	0%	1534	270	$128
Bliss	W80FTD	5-52 ADA	95%	0%	2346	1009	$2,459
Bliss	W81THR	3-43 ADA	97%	0%	2361	1008	$1,332
Bliss	W903FM	2-43 ADA	96%	0%	3669	1440	$7,185
Bliss	W906FV	CIF ISM	98%	0%	59	509	$3
Bliss	W90FCQ	ILSC HBCT MTL	99%	0%	3904	1176	$247
Bliss	W90SLR	5 CSB	91%	0%	2598	1204	$1,384
Bliss	W918SL	TRNG BDE TM1	97%	0%	323	189	$138
Bliss	W91B4W	125 BSB 3BCT	86%	0%	3988	2112	$13,763
Bragg	W36GKH	364 CS 507CSG	0%	97%	703	6359	$5,869
Bragg	W36LKH	407 BSB 2BCT	0%	82%	283	2779	$17,866
Bragg	W36LKJ	82 BSB 3BCT	0%	96%	228	2664	$4,040
Bragg	W36N0T	122 ASB 82CAB	0%	99%	421	3250	$3,526
Bragg	W5J9M5	29 CS CO	0%	0%	186	1642	$16,698
Bragg	W81PK5	MATES 1	0%	99%	128	2061	$643
Bragg	W81YT4	SRA	0%	98%	4257	43827	$31,148
Bragg	W9006A	FLRC-Bragg EFT	0%	99%	1397	23622	$252
Bragg	W900JH	1-7 ADA	0%	0%	446	3602	$37,165
Bragg	W9024E	USASOC SVC ELEM	0%	97%	55	516	$993
Bragg	W904H6	188 BSB	0%	0%	333	2973	$40,051
Bragg	W90N17	ECS 125	0%	99%	51	800	$80
Bragg	W91KBP	3 SFG	0%	93%	212	1861	$3,262
Bragg	W91KBQ	7 SFG	0%	91%	180	1528	$8,941

Post	DODAAC	Unit	DDJC % Sched Truck	DDSP % Sched Truck	DDJC Total	DDSP Total	Cost From Modes Other Than Truck
Campbell	W34GM2	IMMD	0%	99%	1306	12562	$5,854
Campbell	W34GMT	305 CS 101SPT	0%	98%	962	8494	$11,149
Campbell	W34TVH	801 BSB 4BCT	0%	98%	450	3876	$7,837
Campbell	W34XC5	DOL	0%	96%	623	6749	$13,483
Campbell	W34XYK	426 BSB 1BCT	0%	96%	166	1245	$1,991
Campbell	W34XYL	526 BSB 2BCT	0%	98%	321	2666	$3,930
Campbell	W80N5C	160 AVN RGT	0%	99%	1482	13188	$6,212
Campbell	W813LX	563 ASB 159CAB	0%	98%	900	8201	$3,522
Campbell	W813LY	96 ASB 101CAB	0%	98%	577	5001	$5,594
Campbell	W81XB3	AVN LOG DIV	0%	99%	3962	43576	$19,105
Campbell	W909AG	FLRC-Campbell	0%	28%	1517	28325	$118,501
Campbell	W91FGT	DOL MNT	0%	100%	56	589	$0
Campbell	W91LCR	5 SFG	0%	93%	200	2068	$3,026
Carson	W51HUU	DOL MNT	98%	0%	8169	2477	$2,058
Carson	W51WKX	64 BSB 3BCT	98%	0%	709	663	$2,451
Carson	W80BTZ	183 MNT NONDIV	98%	0%	7456	2992	$5,351
Carson	W81RP5	DOL	99%	0%	955	240	$109
Carson	W81RP6	DOL	99%	0%	1458	745	$517
Carson	W81U1J	704 BSB 4BCT	99%	0%	512	11	$57
Carson	W81UN9	MATES 1	0%	0%	693	178	$4,695
Carson	W81XF9	4 CSB 1BCT	98%	0%	2334	1396	$1,128
Carson	W81XGA	204 BSB 2BCT	98%	0%	6176	2649	$3,453
Carson	W81YXR	FLRC-Carson	98%	0%	16185	4442	$5,554
Carson	W90C3P	FCMF	99%	0%	831	146	$58
Carson	W90KEL	ECS 42	0%	0%	914	202	$3,542
Carson	W90NAP	ILSC MF BAE	99%	0%	3893	1074	$147
Carson	W91FPV	DOL MNT	98%	0%	15484	4266	$11,498
Carson	W91KTT	HBCT MFT LBE	93%	0%	1935	456	$427
Carson	W91M23	10 SFG	19%	0%	1629	914	$30,755
Drum	W16BEC	DOL SUP MNT	0%	99%	631	9135	$2,359
Drum	W806K8	MATES 1	0%	0%	112	1361	$12,301
Drum	W810DR	514 BSB 10SB	0%	98%	313	2941	$7,518
Drum	W81ALT	710 BSB 3BCT	0%	94%	241	3068	$5,466
Drum	W81C01	277 ASB 10CAB	0%	96%	928	8809	$9,702
Drum	W81GJX	DOL AVIM	0%	98%	157	2170	$94
Drum	W81W29	SRA MAIN STOR	0%	94%	149	2576	$389
Drum	W90ADP	10 BSB 1BCT	0%	97%	284	2944	$3,082
Drum	W90LY8	ECS 1	0%	0%	211	2778	$11,779
Drum	W90PVU	DOL MNT	0%	99%	687	11692	$189
Drum	W916YB	DOL AMCOM RESET	0%	99%	1260	16220	$5,607

Post	DODAAC	Unit	DDJC % Sched Truck	DDSP % Sched Truck	DDJC Total	DDSP Total	Cost From Modes Other Than Truck
Eustis	W26AL2	DOL MNT	0%	98%	323	3223	$4,280
Eustis	W26RK4	DOL	0%	94%	432	4209	$5,308
Eustis	W26RKT	558 TC	0%	97%	427	3425	$3,013
Eustis	W81JBN	AVN LOG SCH	0%	99%	163	1644	$37
Eustis	W90U83	ECS 93	0%	0%	109	1314	$8,902
FtJacks	W37N01	USAG Jackson	0%	98%	261	2881	$13,681
FtJacks	W90N16	ECS 124	0%	0%	71	1215	$6,523
Hood	W42SU8	27 CSB	97%	96%	6192	3820	$17,951
Hood	W42UUE	404 ASB AVB	98%	0%	5293	2477	$114,854
Hood	W4546G	615 ASB 1ACB	94%	97%	1362	614	$681
Hood	W45CMN	DOL MNT	96%	98%	7869	2313	$4,944
Hood	W45GJ2	USAG Hood	0%	0%	11689	3982	$188,926
Hood	W45J66	15 CSB 2BCT	98%	96%	3120	1462	$12,081
Hood	W45J67	115 CSB 1BCT	97%	97%	2267	1000	$5,840
Hood	W45NQ7	DOL CL IX	88%	92%	13211	6003	$26,074
Hood	W45RNQ	3 ACR	98%	97%	5160	2705	$22,323
Hood	W51WKY	4-3ACR	98%	0%	2769	1103	$37,097
Hood	W5KA0V	DOM MNT NMP	99%	96%	19155	7730	$316
Hood	W806DY	ECS 64	0%	0%	62	1011	$5,323
Hood	W80XYJ	62 QM	98%	96%	8792	3903	$14,566
Hood	W80Y1C	AMCOM DM	99%	98%	3257	1132	$1,682
Hood	W81CL8	MAINT DIV	98%	5%	9998	3615	$49,740
Hood	W81E1D	215 CSB 3BCT	99%	97%	3186	1449	$3,514
Hood	W81F5M	MAINT DIV	99%	6%	1507	482	$7,910
Hood	W81XF9	4 CSB 1BCT	93%	0%	1512	940	$40,300
Hood	W904TH	FLRC-Hood	99%	90%	57769	15391	$13,724
Hood	W90CXK	FLRC-Hood	99%	45%	7770	1914	$13,327
Hood	W90GLR	CECOM	100%	0%	2160	1639	$20,922
Hood	W90JLH	AMCOM OH58 RESE	99%	98%	3203	974	$249
Hood	W90LWZ	HBCT MFT	99%	99%	1642	629	$44
Hood	W90ZTF	509 FSC	0%	2%	580	258	$6,061
Hood	W912UB	AMCOM AVN RESET	99%	0%	2552	855	$18,854
Hood	W912UE	AMCOM AVN RESET	99%	0%	3149	1153	$23,882
Hood	W913TW	AMCOM AVN RESET	99%	0%	4949	2583	$36,150
Hood	W91E2E	2 ADA	93%	0%	2352	930	$23,925
Hood	W91HC4	589 CSB FIRES	99%	95%	1030	484	$2,780
Hood	W91TB4	1-44 AMD	90%	0%	3046	1253	$26,443

Post	DODAAC	Unit	DDJC % Sched Truck	DDSP % Sched Truck	DDJC Total	DDSP Total	Cost From Modes Other Than Truck
Huachuca	W61DEB	LOG MGT	97%	0%	4885	1079	$1,022
Huachuca	W61DEV	USAG Huachuca	95%	0%	1204	422	$793
Huachuca	W61PKJ	19 SIG DSU A	97%	0%	1144	395	$219
Huachuca	W803A5	111 MI BDE	99%	0%	479	117	$211
Huachuca	W81JMJ	West Trng ARNG	0%	0%	465	214	$2,185
Irwin	W80QJK	USAG Irwin	99%	0%	18777	6947	$9,103
Irwin	W80TWT	11 ACR MNT	98%	0%	8868	2311	$3,270
Irwin	W80WKN	SUPPLY	88%	0%	504	377	$509
Irwin	W90A02	MATES 1	92%	0%	542	111	$376
Irwin	W90PLK	FLRC-Irwin	99%	0%	1856	477	$284
Knox	W22PEQ	ISSD	0%	98%	1871	27002	$16,956
Knox	W81NA6	KY RESET PGM	0%	0%	42	612	$3,055
Knox	W90FJM	8-229 AV	0%	0%	163	1501	$9,005
Knox	W90N15	ECS 63	1%	98%	124	1659	$515
Knox	W91BWW	MATES 1	0%	0%	113	2324	$17,988
Knox	WK4GD0	201 BSB	0%	1%	308	4053	$77,006
Lee	W26ADX	SSA	0%	98%	814	8363	$4,919
Lenwood	W58NQ5	DOL SUPPLY	93%	93%	1551	17159	$13,660
Lenwood	W90UMS	4 ME CSB	31%	95%	566	7498	$20,175
Lenwood	W90WPT	ECS 66	0%	0%	357	4517	$27,187
Lewis	W34QWU	4-6 CAV	83%	0%	2315	926	$6,469
Lewis	W68G01	ECS 10	0%	0%	1951	502	$12,484
Lewis	W68MEE	DOL IMD	98%	0%	19326	6115	$6,257
Lewis	W68NE3	DOL MNT	96%	0%	340	191	$518
Lewis	W68PPA	24 CS	97%	0%	6527	2600	$6,991
Lewis	W81E2A	AMCOM	100%	0%	475	91	$5
Lewis	W81UTH	DOL SSA	97%	0%	9445	3060	$3,049
Lewis	W90EU5	308 BSB	80%	0%	1173	421	$1,496
Lewis	W90FT9	UTES 1	0%	0%	961	163	$9,212
Lewis	W90HXE	UH-60 RESET	98%	0%	4834	1189	$492
Lewis	W90SZZ	4-160 AVN	98%	0%	1181	390	$481
Lewis	W90XDL	1-214 AV	0%	0%	381	149	$1,703
Lewis	W912U7	AMCOM AVN RESET	97%	0%	4040	998	$1,100
Lewis	W91M02	4-160 AVN	97%	0%	420	157	$141
Lewis	W91M03	4-160 AVN	98%	0%	2100	627	$2,462
Lewis	W91M1Z	1 SFG	81%	0%	1165	562	$3,334

Post	DODAAC	Unit	DDJC % Sched Truck	DDSP % Sched Truck	DDJC Total	DDSP Total	Cost From Modes Other Than Truck
Riley	W55GPJ	DOL IMA	99%	98%	8444	2690	$8,314
Riley	W55WNU	MATES 1	94%	98%	6787	2554	$4,088
Riley	W81WRD	101 CSB 1BCT	97%	96%	5248	2800	$14,607
Riley	W81WRE	299 BSB 2BCT	98%	97%	3915	1794	$11,788
Riley	W90889	170 MNT	94%	0%	2602	1017	$8,256
Riley	W909K9	FLRC-Riley	96%	99%	17323	4081	$3,685
Riley	W90A84	DOL 7-9	98%	97%	5216	1878	$2,472
Riley	W90A87	DOL 2-3P-4	92%	97%	267	252	$1,011
Riley	W90H50	GS MNT MATES	97%	99%	6322	2154	$2,428
Riley	W90N9Z	ILSC MF BAE	97%	97%	1638	417	$138
Riley	W90WXM	ECS 33	87%	99%	2658	405	$516
Riley	W91ZLD	701 CSB 4BCT	95%	0%	507	169	$2,269
Riley	WK4BNX	601 ASB CAB	90%	96%	2576	1241	$4,515
Rucker	W31NWR	USAG Rucker	0%	74%	313	3112	$40,209
Rucker	W31NWY	1-13 AVN	0%	80%	5108	44451	$112,829
Rucker	W80KG6	597 OD MNT	0%	59%	86	811	$5,833
Rucker	W90N18	ECS 143	0%	99%	105	1284	$0
Rucker	W91VS8	UTES 2	0%	90%	66	1010	$1,565
Sill	W44DQ1	DOL SUP	99%	97%	29640	10210	$27,823
Sill	W44KN3	168 BSB	95%	99%	3468	1540	$1,424
Sill	W44VAM	MATES 1	100%	0%	2961	1340	$8,126
Sill	W806CN	ECS 162	0%	0%	715	129	$5,446
Sill	W81NMJ	3-2 ADA	81%	0%	1868	765	$16,072
Sill	W90THB	382 RGT	98%	100%	727	224	$45
Sill	WK4GAA	100 BSB	96%	98%	2619	1077	$4,003
Stewart	W33DL5	DIV HQ	0%	97%	1005	7679	$5,459
Stewart	W33K09	703 BSB 4BCT	0%	96%	506	4628	$12,764
Stewart	W33KD9	AMCOM DM	0%	97%	61	634	.
Stewart	W33NYN	CONSOL PROP	0%	99%	1096	14347	$6,170
Stewart	W33NYP	AVN AIMI	0%	94%	1588	15229	$13,176
Stewart	W33RBS	226 QM 3SUS	0%	97%	809	6087	$17,429
Stewart	W33TLB	603 ASB 3CAB	0%	94%	71	431	$281
Stewart	W80JTN	MATES 1	0%	0%	94	2460	$22,552
Stewart	W81R1C	3-160 AVN	0%	0%	300	2502	$16,880
Stewart	W81U3U	26 BSB 2BCT	0%	96%	82	681	$1,302
Stewart	W90727	W90727	0%	0%	51	601	$2,977
Stewart	W90DGH	FLRC-Stewart	0%	99%	2339	31647	$3,282
Stewart	W90E5Y	FMS 3	0%	0%	44	494	$9,983

Post	DODAAC	Unit	DDJC % Sched Truck	DDSP % Sched Truck	DDJC Total	DDSP Total	Cost From Modes Other Than Truck
Stewart	W90HXS	CH-47 RESET	0%	98%	674	7388	$4,429
Stewart	W90PJ2	MATES 1	0%	0%	17	543	$4,488
Stewart	W912U5	AMCOM AVN RESET	0%	97%	293	2556	$2,925
Stewart	W91JXQ	CONSOL MNT	0%	99%	819	7859	$1,250

SOURCE: Strategic Distribution Database (SDDB), FY10.

Table A.3 provides information that may indicate possible candidates for future scheduled truck service. For FY10 weight data from the DSS files, it shows total weight by base or post and its assigned SDP[14] for locations that are not currently served by a scheduled truck. It breaks volume out by small package and large shipment weights and the transportation costs for both, as well as the total cost. The table is limited to non-truck locations with at least 100,000 pounds of SDP shipments in FY10.

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[14] In most cases; the table also includes some high-weight post/secondary SDP combinations if those might be possible candidates for scheduled truck service.

Table A.3
Highest-Volume CONUS Locations with No Scheduled Truck Service (minimum 100,000 pounds shipped from the SDP)

Post	SDP	Small Package Weight	Large Shipment Weight	Total Weight	Small Package Cost	Large Shipment Cost	Total Cost
Charleston	DDSP	85,521	944,186	1,029,707	$116,126	$173,999	$290,125
Carson	DDSP	160,047	515,437	675,484	$157,890	$515,198	$673,088
Blue Grass	DDSP	16,698	651,997	668,695	$18,955	$123,784	$142,739
Bliss	DDSP	135,968	490,610	626,578	$123,264	$381,868	$505,131
KY W90JFF	DDSP	3,494	613,178	616,672	$3,347	$121,393	$124,740
Corpus	DDSP	132,673	342,578	475,251	$161,580	$260,675	$422,255
Shelby	DDSP	125,684	345,675	471,359	$134,729	$176,609	$311,338
Limeston	DDSP	51,438	319,273	370,711	$59,417	$157,837	$217,254
Hill	DDSP	100,812	259,502	360,314	$111,216	$202,335	$313,551
Indiantown	DDSP	95,412	199,544	294,956	$39,201	$27,541	$66,742
Hunter Ligget	DDJC	46,869	225,034	271,903	$38,581	$32,835	$71,416
Atterbury	DDSP	49,380	194,257	243,637	$62,836	$32,123	$94,959
McCoy	DDSP	76,822	135,355	212,177	$71,423	$75,777	$147,200
Lackland	DDSP	53,231	132,743	185,974	$49,538	$77,782	$127,319
Dix	DDSP	81,673	92,098	173,771	$41,001	$36,107	$77,107
Hurlburt	DDSP	69,973	97,159	167,132	$46,806	$64,653	$111,459
San Antonio	DDSP	102,817	63,307	166,124	$170,042	$93,913	$263,955
IA W54CJX	DDSP	65,423	96,257	161,680	$57,179	$71,693	$128,872
Seymour Johnson	DDSP	57,271	95,849	153,120	$65,238	$36,561	$101,799
Tyndall	DDSP	72,662	78,883	151,545	$51,794	$62,531	$114,324
Gordon	DDSP	47,570	101,119	148,689	$40,465	$51,881	$92,346
Little Rock	DDSP	75,817	69,940	145,757	$71,284	$50,070	$121,354
Corpus	DDJC	24,023	117,062	141,085	$34,472	$122,537	$157,009
Andrews	DDSP	55,643	75,887	131,530	$25,104	$18,261	$43,364
Belvoir	DDSP	21,598	102,575	124,173	$10,980	$16,595	$27,575
OR W66MRR	DDJC	32,735	75,981	108,716	$35,032	$39,199	$74,231
Barksdale	DDSP	52,219	55,738	107,957	$62,035	$51,622	$113,657
OR W90AJG	DDJC	572	102,521	103,093	$129	$29,047	$29,176
OH W24L9M	DDSP	17,709	85,076	102,785	$9,095	$15,168	$24,263
Langley	DDSP	29,959	71,972	101,931	$18,347	$16,436	$34,783
Shaw	DDSP	35,057	66,776	101,833	$43,207	$25,970	$69,178

SOURCE: DSS GBH/MPH files, FY10.

NOTE: Excludes full truckload (shipmode A). Post locations from RAND-maintained DODAAC file. Tables includes Reserve/National Guard units (indicated with state and DODAAC). The table excludes most cases of secondary SDP shipment totals exceeding 100,000 pounds (e.g., DDSP to Fort Lewis).

Bibliography

Defense Logistics Agency, *Military Standard Requisitioning & Issue Procedures (MILSTRIP) Manual*. As of November 2010: http://www.dla.mil/j-6/dlmso/elibrary/manuals/milstrip/default.asp

Dumond, John, *Define-Measure-Improve: The Change Methodology That Has Propelled the Army's Successful Velocity Management Initiative*, Santa Monica, Calif.: RAND Corporation, RB-3020, 2000. http://www.rand.org/pubs/research_briefs/RB3020.html

Dumond, John, et al., *Velocity Management: The Business Paradigm That Has Transformed U.S. Army Logistic*s, Santa Monica, Calif.: RAND Corporation, MR-1108-A, 2001. http://www.rand.org/pubs/monograph_reports/MR1108.html

Headquarters, United States Army G-4, and Headquarters, Defense Logistics Agency (DLA), *Performance Based Agreement (PBA)*, May 12, 2008.

USTRANSCOM, *Defense Transportation Coordination Initiative (DTCI)*. As of November 2010: http://www.transcom.mil/dtci/